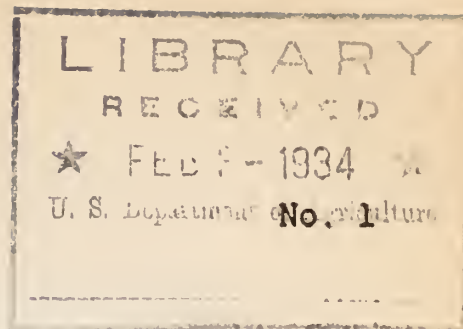


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January, 1934



THE BLISTER RUST NEWS

Issued by the Division of Plant Disease Eradication
and Control and the Cooperating States.

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U. S. Department of Agriculture
Bureau of Entomology
Division of Plant Disease Eradication and Control
Washington, D. C.

BLISTER RUST CONTROL WORK IN THE NATIONAL PARKS IN 1933

J. F. Martin

Control of white pine blister rust was actively prosecuted during the season of 1933 in several of the National Parks under the E.C.W. program. In the West, two camps were maintained in Mt. Rainier National Park and one in Yosemite. Blister rust work in Mt. Rainier was centered on the Muddy Fork of the Cowlitz and on the White River, while that in Yosemite was carried on in the vicinity of Crane Flat. In the former Park, both areas were reworked and 62,269 Ribes destroyed with 1,234 man-days of labor on 492 acres of land. Of the total area, 27 acres were of stream type and covered with an abundant growth of Ribes bracteosum. In Yosemite National Park, 50 C.C.C. men eradicated 248,174 Ribes from 474 acres in 763 man-days with an average of 523 Ribes bushes per acre.

Control work in the East was conducted in the Great Smoky National Park, the Shenandoah National Park and Acadia National Park. Operations were conducted in the Great Smoky from three C.C.C. camps in Cade's Cove Region (Tennessee) and two camps in the Cataloochee (North Carolina). Both areas were relatively free of Ribes. In the Cataloochee section, R. cynosbati was found at 2,600 feet in wet, rocky soil under 70 to 85% shade. This is the lowest elevation at which Ribes were found growing in this Park. In the Shenandoah, 760 acres were cleared of 243,240 bushes with 11,472 man-hours of labor, and 3,198 acres eliminated by scouting. The average number of Ribes per acre was 320 but the maximum ran over 5,000 per acre. All the work was conducted at elevations between 3,300 to 3,700 feet. Two camps, one at Eagle Lake and the other at Long Pond, conducted blister rust control work in Acadia National Park. Ribes eradication resulted in the removal of 144,584 wild Ribes from 7,069 acres with an expenditure of 26,127 man-hours of labor. A blister rust pruning project was commenced in Acadia on September 12. A total of 1,951 infected white pine trees were treated for control of blister rust. In this work, 5,762 infected branches were cut off, the tops of 283 trees were removed and 286 trunk cankers were treated. Also, 849 trees too badly diseased to salvage were cut down and destroyed. This work covered an area of 60 acres and consumed 2,457 man-hours of work.

The summary of blister rust work as conducted in the National Park areas in 1933 is included in the following table:

Park	Project	Acres Worked	No. of Ribes Destroyed	No. of Trees Treated	No. of Man Days
Mt. Rainier	Ribes eradication (rework)	492	62,269	-	1,234
Yosemite	Ribes eradication	474	248,174	-	763
Great Smoky	Ribes eradication, scouting and mapping of white pine	3,835	149	-	120
Shenandoah	Ribes eradication, scouting and mapping of white pine	3,958	243,240	-	11,472
Acadia	Ribes eradication	7,062	144,584	-	26,127
	Salvaging of infected trees	60	-	1,951	2,457
Total		15,881	698,416	1,951	42,173

SOME NOTES ON BLISTER RUST CONTROL AS A C.W.A. PROJECT IN CONNECTICUT

J. E. Riley, Jr.

One of the projects authorized by the Federal Civilian Works Administration for Connecticut is known as State Forestry Project #32. It embraces various forestry activities, including a cultivated Ribes survey in certain towns within the natural white pine area of the State. Fifty C.W.A. laborers and four foremen, three of whom are C.W.A. workers, were allotted to the survey. The blister rust sub-project was organized and is being supervised by the State Leader. The purpose of the survey is to locate, classify and map all cultivated Ribes in the designated towns as a preliminary step in the systematic removal of those bushes lying within infecting distance of white pine stands.

There was doubt in the minds of some regarding the wisdom of using C.W.A. men on a project calling for a knowledge of Ribes identification and requiring a constant contact with the public, but returns to date appear to justify their use. Three main problems arose in connection with the organization of the survey, relating to supervision, transportation and the quality of labor necessary. A brief description of these problems and a statement of the progress of the survey may be of interest.

In accordance with the C.W.A. instructions a conscientious effort was made to keep the supervision to a minimum. We experienced some difficulty in getting authority to employ even the minimum of required supervision. This difficulty was overcome by giving one of the temporary agents charge of a group of 14 C.W.A. men. Two C.W.A. foremen each supervised 14 men and the third C.W.A. foreman supervised 8 men. We have just received authority to increase this 8-man crew to a 14-man crew, making a total of 56 laborers and 4 foremen.

The problem of adequate transportation presented a serious difficulty. Fortunately one Federal and one State car was available and we succeeded in securing authorization for the use of six personally owned cars on other funds. Consequently we had two cars to each group of 14 men. This is the minimum transportation required for the work. The transportation is used to get the men to and from their assignments and for the use of the foremen in checking the work.

The problem of securing competent laborers for the survey appeared great at first, but resolved itself into a minor problem because in all four districts in which the survey is being made we received the finest cooperation from the reemployment agencies and were favorably impressed with the way the unemployment registration is being conducted and assignments placed. In one district 14 men were chosen from 100 assembled applicants.

Before undertaking the work in the districts the foremen were assembled and the matter of Ribes identification in winter conditions discussed. Each foreman then organized the sub-project in his district and

trained the men in Ribes identification and differentiation of species. When the men qualified for their jobs they were paired off and each couple was given a field map comprising a group of blocks. Their job is to systematically survey each property and cellar hole to ascertain the following data:

1. Number and condition class of gooseberries, flowering currants, European currants and other currants.
2. Location of Ribes in relation to white pine stands.
3. Attitude of owners toward removal of those bushes endangering pine.

Each house and cellar hole is located on the field map and given a number corresponding to the interview card. If the Ribes are within 900 feet of white pine the number on the map is "boxed" in red; if over 900 feet the number is "boxed" in blue. When the bushes are finally removed the "boxed" number will be fringed. These maps are bound in township folders and, together with the interview cards, give an easily accessible picture of the cultivated Ribes situation.

The survey data for the first two weeks are summarized below:

Contacts

No. of towns in which work was done 10
 Total number of man hours worked..... 2,264
 No. of initial interviews..... 4,497
 No. of follow-up calls..... 72

Ribes Classified by Distance from White Pine

	Ribes Patches		Ribes Bushes	
	Number	Percent	Number	Percent
Ribes within 900 feet of white pine	768	80.4	7,725	81.1
Ribes over 900 feet from white pine	187	19.6	1,806	18.9
Totals	955	100.0	9,531	100.0

Ribes Classified by Owners' Attitude Toward Removals

	Ribes Patches		Ribes Bushes	
	Number	Percent	Number	Percent
Within 900 feet of white pine:				
Agree to sacrifice bushes	666	86.7	6,539	84.6
Refuse	19	2.5	307	4.0
Attitude Undetermined	83	10.9	879	11.4
Totals	768	100.0	7,725	100.0
Over 900 feet from white pine:				
Agree to sacrifice bushes	142	75.9	1,327	73.5
Refuse	4	2.1	54	3.0
Attitude Undetermined	41	22.0	425	23.5
Totals	187	100.0	1,806	100.0

Costs

	Man Hours	Rate	Dollars
Foreman's time	222	80¢	177.60
Labor	2,110	50¢	1,055.00
Total Labor Costs	2,332		1,232.60

Transportation will run approximately 1,000 miles per month per car, which at 5¢ per mile will total \$400 per month. Assuming that the transportation cost to date is \$200, we get a total cost for the first two weeks of \$1,432.60. These figures give approximately 32¢ per interview or \$1.50 per Ribes patch located, or 15¢ per Ribes surveyed. These figures include all mapping and office work and much valuable educational work. Approximately 86% of the total cost of the survey is labor and roughly 75% of the transportation costs are paid to the C.W.A. men who supply their personally-owned cars.

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INSPECTING WHITE PINE AREAS IN OHIO

State Leader Dowd of Ohio, who has been inspecting white pine areas, gives the following summary of inspections made during the week of December 18-22:

No. of plantings visited	20
No. of white pines sent out from nursery	260,300
Estimated no. of white pines found	99,725
Percentage of survival.....	38%
No. of plantings recommended for blister rust control in 1934.....	4

Mr. Dowd states "The factors largely responsible for the loss in trees are poor planting sites and neglect. The white pine does not survive when planted on the silty black soils which are wet during the fall, winter, and spring. One owner lost 100,000 trees by turning dairy cows into the planting. It is most discouraging to visit plantings where a lack of interest is shown in reforestation, but we hope to find out the actual status of 25 years of white pine planting in this State."

Mr. Morrison who is mapping white pine at the Little Mountain Area reports that of the 560 acres mapped in four days, 110 acres were in scattered native white pine, and about 75 acres were in young planted white pine, some of which is doing nicely in spite of the fact that weevil has caused considerable damage in spots.

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Mr. J. Leslie Shontz, technical foreman at C.C.C. Camp Ga. F-9, Lakemont, Georgia, writes that in a 16 year old white pine plantation, the largest tree measured 8 inches in diameter and 45 feet in height.

SIDELIGHTS ON THE MASSACHUSETTS CWA-BRC PROJECT

C. C. Perry

November 27

"Spent the day in the city of Gardner with the welfare and unemployment service officials, and at 4:00 p.m. I had only 10 men ready to go to work the following morning. I was informed by the welfare official that not a single able-bodied man remained on the public welfare list.

"In the town of Rutland I sought out one of the straw bosses who worked on our NRA Ribes eradication project in September, with the intention of offering him employment as a foreman. I found that he was already employed on a local town project, and he in turn informed me that not a single able-bodied man in town was out of work."

William Clave

November 27

"Started canker elimination project on the lands of the Westfield Water Works in Montgomery. Selected 12 men for the first day; half from public welfare, and half from the local reemployment office in Governor Ely's home city (Westfield)"

R. E. Wheeler

"Conferred with the local unemployment office and was informed by the official in charge that I would have to take the men he chose to assign to me. I countered to the effect that I was under instructions to employ only men with previous experience in the identification of black currants. I advised further that we fully intended to maintain our particular project at the highest possible level of efficiency and effectiveness. I won!"

E. M. Brockway

December 1

"The first CWA checks were apparently windfalls for some of the men on the black currant location sub-project. The day following the receipt of the first checks, I noticed that these men sported brand new overshoes, and I can say they needed them. The first days on the job were real winter days and caught some of the men working in low cuts."

E. M. Brockway

December 18

"The huge piles of diseased trees removed from the waterworks plantations in Blandford certainly give us something tangible with which to vividly show what our CWA project is all about."

R. E. Wheeler

December 21

"Some owners of white pine plantations would get a real jolt if they could see some of the bonfires our crews are making with infected pines and branches cut from the plantations where we are now working."

G. S. Doore.

December 23

"They certainly like black currants out Hyde Park (Boston) way. On several days we have found more bushes than in the entire town of Brookline, where we completed work last week, having found only 20 places where black currants were growing, and only 112 bushes in all, after canvassing 6,281 properties."

E. M. Brockway

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RAPID INCREASE IN PINE INFECTION IN UNPROTECTED AREAS

W. O. Frost, Maine

Although pine infection data has been taken on scores of acre and quarter acre sample plots in the past few years, we have felt that such data was not a true picture of conditions. Small plots are usually taken in the most heavily infected areas; infection as high as sixty to ninety percent or better being common in local areas. This is not a true picture, and in order to get a more representative picture of infection conditions in unprotected pine areas, we recently ran a one rod wide strip line 23.5 miles in a southwesterly direction through the towns of Searsport, Belfast and Lincolnville, Maine, keeping within young pine and recording each branch and trunk infection by years. The line was not always in pine, as the pine areas were spotty, being broken up by fields, pastures, and other forest types.

A total of 5,369 pines averaging 11 feet in height were examined, of which 1,436 or 26.75 percent were found to be infected. Of the 2,522 infections found there were 1,225 live branch, 158 dead branch, 941 live trunk, and 198 dead trunk cankers. The oldest infection found was on 1915 wood, the youngest was on 1932 wood. In 1915 the percent of infections was but .08 percent, and was less than two percent in 1920, but from then on until 1929 the percent of yearly infections increased rapidly, reaching 13.20 percent in that year. From 1929 on, the number of infections tapered off sharply, because of the impracticability of finding and recognizing cankers in the earlier stages of their development due to the three-year incubation period of the disease on pines. The data in the accompanying chart illustrates the gradual intensification of the rust on pines in unprotected areas.

STATE OF MAINE

Strip Line Survey Made During the Month of December 1933
in the Towns of Searsport, Belfast and Lincolnville.

23.5 Miles Long and 1 Rod Wide. Ribes Never Eradicated.

5369 Trees Examined - Average Height 11 Feet.

(1225 Live Branch Cankers

(158 Dead Branch Cankers

1436 Trees Infested or 26.75% - (941 Live Trunk Cankers

(198 Dead Trunk Cankers

(2522 Total Cankers

Infection curve

Curve incomplete for this period because of impracticability of finding many of the infections due to the three-year incubation period on pines.

15%

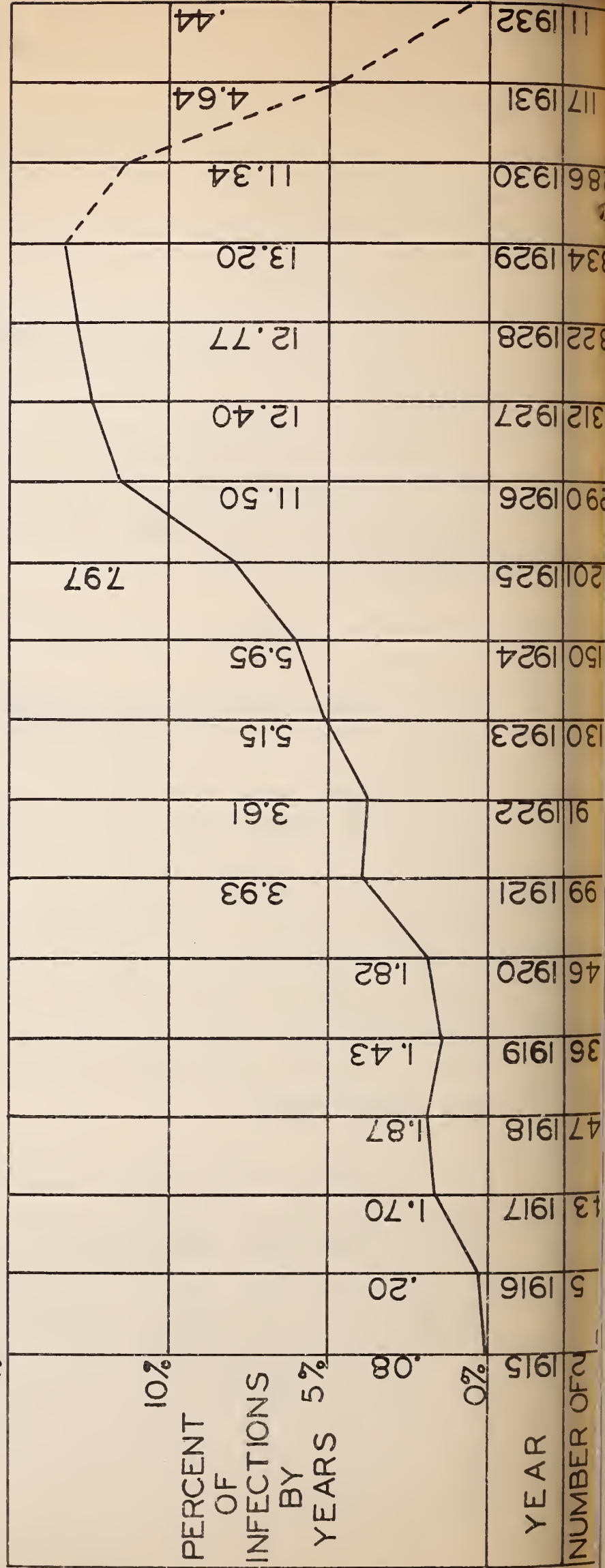
10%

PERCENT
OF
INFECTIONS
BY
YEARS

5%

0%

YEAR
NUMBER OF



SECRETARY WALLACE SPEAKS ON CONSERVATION

(Address by Henry A. Wallace, Secretary of Agriculture, in a series of broadcasts on Conservation; National Farm and Home Hour, NBC, January 12, 1934, at 12:40 P. M.)

This series of broadcasts on the general theme of conservation has the hearty approval and support of the Federal Government in general and the Department of Agriculture in particular. It is a public service to arouse and inform public opinion on how our natural resources have been utilized, and how they ought, as a public trust, to be utilized in the future. And it becomes compulsory to discuss the problem when we find that past methods of utilizing these resources have started a long train of evil consequences for our generation and future generations to contend with.

I suppose many obvious things about the perpetual importance of the land will have to be said for the benefit of those who are remote from it, and who forget their utter dependence on it. I am all for hammering away at these fundamentals until an overwhelming majority of the public is awake to what a century of exploitation has done to our forests, our grasslands, our crop lands, and our water supply. I should like to see developed a vigilant national consciousness which will block further exploitation by anyone; I hope for an awareness of the fact that we not only live off the land in a physical sense, but that we also live on the land in a deeply spiritual sense.

It should be possible, by one means or another, to develop in the American people the feeling of common ownership of our public forests and lands that has been developed in many European countries; and with that there may come a new sense of responsibility for what happens to all our natural resources, no matter who holds title to them. The private enterprise that builds a dam on a river, or owns a mine or a tract of timber, has in its possession some part of the common heritage of the American people; the way in which the resource is used may affect, for good or ill, lives and property quite remote both in distance and time. Plainly the age of exploitation is over; the continent is conquered; the time has come to free the cooperative, social impulses of man. In these we shall find the motive-power for our national program of conservation and wise use of our natural resources. It is for Government to lead the way, it seems to me, with an intensity of purpose, a sense of responsibility, and a record of accomplishment such as it has never achieved in the past.

Our earliest governmental attitude toward the land was one which sought to get it into private ownership promptly and speedily, so that it might be settled and become productive. We expected this to produce the best results not only for individuals but for society; and indeed it did serve the purpose of that time. I suppose no great area in the history of the world was ever settled as rapidly, and its resources made use of to such an extent, as the United States. Some of the settlement, unfortunately, produced more tragedy than happiness; in our haste and competitive zeal there were economic and social errors whose consequences are with us yet; and denuded hillsides, scarred timberlands, gullied slopes tell a distressing tale of pioneers who exploited not wisely, but too well.

It was not surprising, in a pioneer economy, in the midst of apparently unlimited natural resources, for an active and individualistic expansion to result. The public domain, in those days, seemed to be open to anyone who could find a use for it, and the possibility that the sum of individual actions might not add up to a highly desirable social good, but rather to grave social problems, was not likely to occur to very many people.

Later on, the States saw in the public domain an easy source of revenue, and the land was sold to energetic settlers and, in many cases, to equally energetic land speculators. Dreams of prosperity persuaded many States and territories of the need for more and more settlers, for increasing populations to work and buy and sell, and the policy shifted to one of encouraging development by outright gift, both to actual settlers and to such interests as the railroads. Between 1841 and 1861, three times as much public land was given away as was sold. The passage of the Homestead Act in 1862 represented the culmination of efforts to stimulate settlement. By the end of the century, most of the desirable and plowable land was in farms -- including millions of acres which should never have been put under the plow.

It was a century of rapid expansion, but it was not without its own economic difficulties. Three times--after the Napoleonic Wars, after the Civil War, and in the 90's--our agricultural output exceeded the ability of foreign countries to take our surpluses; and prolonged periods of low prices occurred. Each time, however, the growth of population in Europe, and a similar growth here among pioneer families innocent of birth control, together with a thronging immigration from Europe, created new markets and furnished a new stimulus to expansion. And labor troubles in the cities, industrial depression and urban unrest, found an obvious outlet in the great open spaces.

The first serious land difficulties began to appear several generations ago in the older settlements of the East. Cheap livestock from west of the Alleghenies offered an unanswerable competition for the small holdings of New England, and our first "abandoned farms" appeared. When the great western prairies began showering abundance, there was nothing for the eastern farmer to do but to change his manner and kind of farming radically, or move out. In some counties of the Atlantic Seaboard States, because of this western competition, and also because of depleted or eroded soils, cultivated acreage has been shrinking since the Civil War, and is still shrinking. The violent shift westward of the cotton and wheat belts since the war is further evidence of that.

For many years we preferred not to notice these difficulties of the eastern rural community since westward migration was open to all. But 30 years ago doubts began to arise. It occurred to some that heedless exploitation of our resources solely in the interest of each individual holder might not be the only way to proceed; other ways might yield more profitable consequences, both to the individual and to society. It was then that the Government became actively interested in our natural resources, in our forests and our soils and our water supply, as well as our mineral stores.

Many of you may recall that dramatic controversy over the conservation of natural resources which occurred during the administration of Theodore Roosevelt, and which gave rise to the first substantial conservation movement in this country. Theodore Roosevelt revealed himself as a thorough-going conservationist, despite his undoubted individualism and ruggedness. Whether he ever admitted it in so many words, in effect he led the people to understand that private ownership did not necessarily protect posterity, and that the Government itself would have to hold and administer at least some of our basic resources if any protection at all was to be had. The Forest Service was established to administer many of the large tracts of forest still remaining in public hands; the Park Service, to develop national parks for public recreation; and the Reclamation Service, to increase the area of arable land, especially by irrigation. Meanwhile the Land Office continued to dispose of the unreserved portion of the public domain.

The result was not a coordinated, inclusive land policy or conservation policy; it was too static and too fragmentary to be called a national policy; but it was at least a beginning. The arrival of the World War, and the resulting change in the whole course of our economic development, found these early policies largely inadequate. The Reclamation Service continued to develop new projects without considering the failure of previous projects to pay their way, or the questionable demand for the output of new land. The Indian Bureau continued to lease new tracts of land to settlers--while a growing Indian population tried to adjust itself to smaller and smaller reservations. The land settlement agents of railways, State, and lumber companies continued to entice settlers into occupying new or cut-over lands and farming them, regardless of the failure of those who had tried before and failed or those who were struggling desperately to make ends meet on lands which ought never to have been settled. The Forest Service and the Park Service continued to do a useful job within their own domains, but necessarily without much reference to the needs of the Nation as a whole. Here and there, to be sure, governmental agencies surveyed actual conditions in distressed areas; the Division of Land Economics of the Department of Agriculture began to study the basic economic problems concerned with land, and to develop much useful information on the subject; but as a whole, there was no unified policy and no unification of governmental agencies to guide settlement and resettlement.

What has long seemed desirable to do, becomes, with the depression, essential to do. Our recovery program, and especially the adjustment programs of the Agricultural Adjustment Administration, bring us face to face with the necessity for beginning to work out--now--an appropriate long-time policy, in which all uses of land and the potential need for each use are given their proper place. Even though we cannot visualize all the ramifications of the long-time policy, or at this distance untangle all the difficulties that we know are ahead, nevertheless we can begin.

The emergency methods of the Agricultural Adjustment Administration can merge into a permanent program for adjusting our agricultural plant

to the size and shape we need, and for the soundest sort of utilization--which is identical, I take it, with sensible conservation--of all our land resources. As emergency measures we have started to attack the problem of erosion in a widespread, effective way; we are testing, by means of the subsistence homestead idea, the possibility of part-time farming, of a sort of rural-urban living which may become typical, in case decentralization of industry continues, for millions of our people. Now we can begin a more fundamental and more satisfactory method of adjusting supply to demand, and of correcting grievous social evils, by buying and keeping out of production, for as long as is necessary, lands which should never have been in production in the first place. A fund of \$25,000,000 has been made available thus far for purchases of submarginal land; a start, at least, will be made. The effect on our surpluses cannot at once be very considerable; the emergency program of the Adjustment Administration has still to take care of that; but we are making a beginning on a long-time national land policy that recognizes the total economic situation and the imperative necessity for conservation of both our land and our human resources.

It seems peculiarly appropriate that this should take place in the administration of a Roosevelt. The first great impetus for the ideal of conservation of our natural resources came from Theodore Roosevelt; the second great impetus, in the form of a unified, effective national policy of land use, comes from Franklin D. Roosevelt. The first impetus dislodged us from our blind content with things as they were; may this second great impetus bring us close to our vision of things as we know they may easily be.

(Note: The late Henry A. Wallace, when Secretary of Agriculture in 1922, organized the program for cooperative control of white pine blister rust in the United States. The principles and plan formulated by Mr. Wallace have resulted in the most extensive and successful effort in conquering a forest disease that the world has witnessed up to the present time.

The loyal army who waged the blister rust battle were actuated by a deep sense of public service in the cause of conservation. The forceful message by Secretary Wallace presented above deals with a situation which every blister rust control worker sees daily, in all its phases. The white pine forests were ravaged because of their exceptional commercial value. The soil of white pine regions is just rich enough to tempt the farmer and just poor enough to lead to all the troubles inherent in exploitation of marginal lands.

White pine is one of Nature's choicest gifts to man and properly managed, forests of this species are exceptionally well adapted to effective land utilization. The Secretary's message makes it clear that in the future there will be greater incentive than ever before to safeguard our white pine assets and build new white pine forests. It is truly a New Year message to us and should inspire each one of us to renewed confidence and a determination to carry out our individual parts in this great conservation program, giving it the utmost of our ability, loyalty and intelligence. - S. B. Detwiler)

SECURING A TOWN SELECTMAN'S SIGNATURE

John Gillis, Conn.

A rather amusing incident occurred while we were negotiating with the selectman of a certain town for the establishment of a blister rust control area*. We had no trouble in persuading two of the three selectmen to sign the control order, but the third (let us call him Mr. Jones), refused absolutely to sign the order.

"What are your objections?" we asked him.

"Well", he said, "I've got some nice currant bushes at home and my wife makes good jelly from them in the summer time."

"Is that so?" we said. "Why we visited your house only a few days ago and Mrs. Jones informed us that she had no currant bushes; in fact she said there never had been any currant bushes on the farm, and as she appeared to know what she was talking about, we believed her."

Mr. Jones was obviously embarrassed, as the other two selectmen started to laugh. However, he still refused to sign although he apologized for his wife's error, and added, "I've also got about twenty good currant bushes on my mother's old place and they are worth a bit to me."

"Oh, no you haven't," we replied, "we saw your brother the other day and he gave us permission to pull them up, which we did immediately."

We refrain from writing his answer to this unwelcome piece of news, as it would hardly pass the censor. However, the good natured joshing of his friends, combined with a sense of humor which we had failed to notice in him up to this time, soon calmed his anger. "Well," he said, "I guess if those good currant bushes of mine are gone - and let me tell you young man, you wouldn't have done it if my mother had been living - you might as well pull up the rest of them in the town."

With a sly smile on his face he signed the control order.

* Town control areas (blister rust control) are established by the Director of the Connecticut Agricultural Experiment Station under authority from the Legislature, but are not ordinarily established without the approval of the town. In a few cases the signature of the selectmen have been taken as indicating town approval. - J. E. Riley, Jr.

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MOTTOES FOR "C. W. A."

O. J. Dowd, Ohio

Our C.W.A. workers suggest that C.W.A. means "Currants Warrant Activity", "Continue Working Areas", and "'C' What's Accomplished".

NOTES ON EMERGENCY BLISTER RUST CONTROL WORK

Within one week after the final notice that NIRA funds were available for blister rust control work in Idaho forests, approximately 1,035 men were hired through local Federal offices and placed in camps. Checking figures showed conclusively that the work done by these men was as efficient as any Ribes eradication work yet done in the Inland Empire. Of the total men employed, about 275 were sent to the Clearwater National Forest area, 385 to the St. Joe National Forest, and 375 to the Coeur d'Alene National Forest. The bulk of the men sent to the Clearwater and St. Joe areas worked until late October; those in Coeur d'Alene were employed until late September, when stormy weather and heavy snows made continuance of control work impracticable. During the season these men, together with 650 already on the work, cleared about seven million Ribes bushes from 41,000 acres of white pine land. About one quarter of this work was accomplished after the 1,035 men were added to the field force.

C. S. Strong, Jan. 3, 1934.

* * * * *

During the first part of December, a blister rust control pine survey and mapping project was started in Rhode Island under the NIRA program. A total of 3,426 chains of strip line were run in this work. A total of 2,535 acres of land were examined and the white pines located and mapped in 63 man days of work.

A. W. Hurford, Jan. 4, 1934.

* * * * *

In Maryland, H. E. Yost, State Leader on blister rust control work under the NIRA program, scouted and mapped some 12,640 acres of white pine between December 1 and 16. The work was conducted in the Pawpaw Quadrangle in Allegheny County in the region just west of Hancock. It includes all Fifteen Mile Creek tributaries from Little Orleans to Piney Grove via Mudlick Hollow, west to Polish Mountain and north to the Pennsylvania line. This is heavy brush country with numerous bluffs and rocky areas. The survey in this county is showing it to be an excellent white pine country. Cultivated Ribes found on abandoned home sites and scattered wild Ribes show the need for a careful clean-up of these pine areas in the spring. Along Sidling Creek, a few Ribes rotundifolium have been found at elevations down to 600 feet, which is the lowest elevation known for Ribes in western Maryland.

R. G. Pierce, Jan. 1934.

* * * * *

In Ohio four men have been put to work under the C.W.A. program making preeradication surveys of the native and planted white pine areas of the State in preparation for the application of control measures next spring.

O. J. Dowd, Jan. 1934.

C.W.A. PINE MAPPING PROGRAM IN WISCONSIN

T. F. Kouba

The names of 40 men were "scratched" from the list of unemployed shortly after the C.W.A. pine mapping program for Wisconsin became approved. The first of this group began work in Portage County on November 28. The program called for work in 10 districts with 4 men assigned to each district. Of these four workers, the foreman of each crew is classified as skilled and the three mappers as semi-skilled. Each foreman transports his men to and from work by personal auto. Foremen were chosen from a large list of unemployed men who applied directly to this office, and in almost every case the men who were accepted were college graduates with experience in mapping. The three mappers who are classified as semi-skilled workers were chosen from the list furnished by the reemployment office within the county in which pine mapping would be conducted. One semi-skilled worker in each crew is an experienced draftsman, and although he is required to do some mapping in the field, his duties are primarily those of completing the maps in the office from data gathered in the field by the foreman and the other two semi-skilled workers. The majority of the semi-skilled men are college graduates.

Due to the limited time allowed for this C.W.A. work and due to the fact that most of the men were inexperienced in this particular type of mapping, it was necessary to prepare a set of instructions which would give them a concise and complete manual. The 9-page mimeographed pamphlet which was prepared not only covered the procedure and the various reports to be prepared but also gave them valuable instructions as to evaluation of pine areas, the determination of Ribes conditions according to soil types, and the policies of the blister rust control office. Four E.C.W. checkers and three N.R.A. agents went into the field with these new crews and trained them personally, usually spending about a week with each crew before the crew was allowed to proceed by itself.

Following is the progress made in December by C.W.A. mappers:

<u>Acres Pine Mapped</u>		<u>Man-Days Required (7-1/2-hour day)</u>	
<u>Well Stocked</u>	<u>Scattered</u>	<u>Supervision</u>	<u>Labor</u>
8,994	11,768	171	470

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SQUIRRELS DAMAGE WHITE PINE PLANTATIONS

Mr. Jasper Knecht, forest ranger in the Susquehannock State Forest, with headquarters at Cross Fork, Pennsylvania, reports that the red or pine squirrels are causing considerable damage in white pine plantations by gnawing the bark of the trees so severely as to girdle them and cause their death. (Data from the Service Letter of the Pennsylvania Department of Forests and Waters.)

INFECTIONS FOUND IN NEW JERSEY IN 1933

P. B. Mott

Following the plan of visiting sites of recent plantations, 73 sites containing 298,700 white pines 2 to 3 years old were inspected throughout the State in 1933, as well as two sites containing 5 acres of 17-20 year old pines and 6 sites containing older trees. Near these plantations were found 170 red currants (R. sativum), 340 gooseberries (R. reclinata), 3 European black currants (R. nigrum), 13 American black currants (R. americanum), and 10 flowering currants (R. odoratum). Of these, 3 R. nigrum, 16 R. sativum and 12 R. americanum showed infection. Owners were informed of these bushes and of the potential danger of their presence, and at the same time they were acquainted with the appearance of the disease and the salient facts regarding the manner of spread and control. In each case eradication of the nearby Ribes was affected by the owner. One infected American black currant was also found near Branchville in Sussex County.

An attempt to give an estimate of the spread of the rust in New Jersey is difficult in the face of not finding the disease on pines as yet. As will be noted, infected currant and gooseberry bushes may be found each year. At the present time the nearest known pine infection is at Milford, Pennsylvania. With pine growing along the Delaware just across the river at Montague it is logical to assume that infection is present in this district; however, scouting to date has failed to reveal its presence. A few red currants, gooseberries and American black currants in this vicinity failed to show infection this year. Whether infections on white pine become established in the northern part of the State or not remains to be seen. However, the general absence of wild Ribes should be a strong favorable factor that it will not.

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C.W.A.-CULTIVATED BLACK CURRANT ERADICATION PROJECT STARTED IN MICHIGAN

E. C. Mandenberg

Ten counties in Michigan have begun work on the C.W.A.-Cultivated Black Currant Eradication Project, using two men to a county, or a total of 20 men. The counties engaged in this work, and the dates on which work was started, are listed below:

Mackinac County	-	December 11
Marquette County	-	December 18
Mecosta County	-	December 18
Osceola County	-	December 19
Huron County	-	December 20
St. Clair County	-	December 21
Antrim County	-	December 22
Kalkaska County	-	December 22
Wexford County	-	December 26
Crawford County	-	December 27

PROGRESS REPORT ON MASSACHUSETTS CWA PROJECTS

C. C. Perry

The eagerness with which the local men are applying themselves to the CWA blister rust control project in Massachusetts, attests to the real need that we are trying to meet with these emergency unemployment relief activities. The sub-zero temperatures which recently prevailed have made field work almost humanly unbearable.

In the canker elimination sub-project 3,437 stem cankered trees have been cut down, and 3,965 pines have been treated by the elimination of branch cankers only. This work has been under way in 17 townships, with a field force of 100 men and 20 foremen, under the supervision of Agents Clave, Doore, and Wheeler.

In the black currant location sub-project, the canvass has been completed in the town of Brookline and partially completed in the city of Boston. From the inception of the work on November 27 to the end of the last payroll week in December, the field men have inspected 35,221 properties, and recorded 237 patches of black currants. There were 1,110 plants in these locations. Eight men are engaged in the canvass under the direction of Agent Brockway.

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C.W.A. BLISTER RUST WORKERS ERADICATE IMPORTED BLACK
CURRANT BUSHES IN LAKE COUNTY, MICHIGAN

E. C. Mandenberg

Two blister rust workers working in Lake County, Michigan, located a splendid stand of virgin and planted white pine comprising about 200 acres, and only a short distance from this pine they located eight black currant bushes. These bushes were immediately uprooted because the owner was ready and anxious to cooperate in the blister rust control work. An interesting thing about these eight black currant bushes was that they were brought from Sweden about thirty years ago.

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CCC FORCES PROTECT 47,000 ACRES OF PINE IN LAKE STATES NATIONAL FORESTS

According to E.W. Tinker, regional forester at Milwaukee, 38,000 acres of trees planted, 313,000 acres of timber cruising, 67,000 man days of fire fighting, 47,000 acres of white pine blister rust control work, and 55,000 acres of rodent control are included in the 667,000 units of work now completed by the Civilian Conservation Corps in the Lake States National Forests.

OFFICE COMMENT

MEMORANDUM IN RE APPROVAL OF ARTICLES INTENDED FOR
PRESENTATION AT MEETINGS

Lee A. Strong, Chief of Bureau.

December 26, 1933.

During the last few days there has been a rush to have manuscripts approved for presentation at the annual meetings of the two national entomological societies. Notwithstanding the fact that titles for these papers had been submitted for some time, many of the manuscripts were received in the Editorial Office after the middle of December. A number of these articles discuss subjects of interest to, or relating to, work of other bureaus in the Department and should be sent to them for consideration and comment. Such reference has been impracticable in the time available and in some instances approval of the manuscript has been withheld even for reading.

The time of the stated meetings of various organizations is well known and hereafter articles intended for presentation at any such meetings should be submitted in form for examination and approval not less than 30 days in advance of the time when the manuscript should leave the Washington office so as to reach the author in time for presentation at the meetings. Approval will not be given for the reading of papers with the idea that they will be later reviewed and edited. Advance approval should also be secured for titles that are submitted for the program.

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CHIEF, BUREAU OF PLANT INDUSTRY

W. W. Stockberger

(P.B.A. Circular #244-January 9, 1934)

Mr. Knowles A. Ryerson, since 1927 head of the Division of Foreign Plant Importations, Bureau of Plant Industry, has been appointed Chief of that Bureau, vice Dr. W. A. Taylor, retired. Mr. Frederick D. Richey, Principal Agronomist, Division of Cereal Crops and Diseases, Bureau of Plant Industry, has been appointed Associate Chief of Bureau, vice Dr. K. F. Kellerman.

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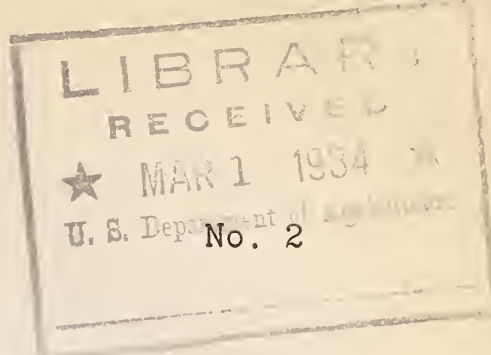
PUBLICATIONS

Anonymous - Blister Rust War. Forestry News Digest, December, 1933.

" - New Hampshire Saves Pine by Killing Gooseberries. The National Nurseryman, Vol. XLI, No. 22, December 1933, p. 6.

Lachmund, H. G. - Mode of Entrance and Periods in the Life Cycle of Cronartium ribicola on Pinus monticola". J.A.R. Separate.

February, 1934



THE BLISTER RUST NEWS

Issued by the Division of Plant Disease Eradication
and Control and the Cooperating States.

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U. S. Department of Agriculture
Bureau of Entomology
Division of Plant Disease Eradication and Control
Washington, D. C.

NURSERY SANITATION - CALENDAR YEAR 1933

A summary of the results of nursery sanitation activities for the year is given in the following table:

Nursery Sanitation Data (Eastern United States)						
State	Number Appli- cations	Pine- Shipping Permits Issued	Permits to Plant Seed Issued	Permit Denied or Application Withdrawn		Remarks
				Future Interest Probable	Future Interest Improbable	
Conn.	2	1	1			
Maine	2	1			1	
Md.	9	8			1	
Mass.	3		1	1	1	
N.H.	1		1			
N.J.	3				3	
N.Y.	1	1				
Pa.	4	1		2		Action pending removal of cultivated Ribes in case of one applicant.
Vt.	1			1		
Va.	4	4				
W.Va.	1	1				
TOTALS	31	17	3	4	6	(1 Application Pending)
Nursery Sanitation Data (Central United States)						
Iowa	3	3				
Ohio	2	1			1	
Minn.	5			5		
Wisc.	1	1				
TOTALS	11	5		5	1	
Nursery Sanitation Data (Western United States)						
Idaho	1	1				
Mont.	1	1				
TOTALS	2	2				
GRAND TOTALS	44	24	3	9	7	(1 Application pending)

It is interesting to note that of the 44 applicants for pine-shipping permits, approval could be given to only 24. These permits authorize the interstate movement of approximately 14,000,000 five-leafed pines. Of the 24, one applicant was authorized to ship to Idaho and Washington only; 11 to the infected States only; and 12 to all States except to the Pacific Southwest. In all the cases where permits were denied to commercial applicants involving some 212,150 five-leafed pines, Ribes of such size or in such numbers as to constitute a real hazard to the five-leafed pine stock in the nurseries were found in the protective zones. White pine blister rust was found on pines in 7 of the nurseries inspected.

After having visited a number of nurseries around which the Ribes are supposed to have been eradicated as completely as practicable by crews operating under the direction of the Blister Rust Control Office and collaborators, we feel that we ought to emphasize again the fact that ordinary control methods as applied to forest stands are not sufficiently thorough to protect white pine nursery stock from blister rust infection. In areas where wild Ribes are common, it seems almost invariably true that a permit is denied a nurseryman for at least the first season or two after initial Ribes eradication is carried out around his premises. Some foremen seem to believe that the purpose of the work has been accomplished even though they overlook a bush here and there. Such eradication while satisfactory for forest stands is not good enough for the protection of nursery stock. The fact that a substantial proportion of the Ribes have been taken out is not considered sufficient to justify the issuance of a permit authorizing interstate movement of the pines in the nursery, when any dangerous Ribes that should have been found are left within the protective zones. The difference between the quality of Ribes eradication required for the control of the disease in forest areas, and the more careful, thorough work required to prevent the infection of pines in nurseries, is the factor that determines whether or not a nursery qualifies for a pine-shipping permit.

In the New England States so many nurseries have been refused permits in past years following Ribes eradication in their environs, that the blister rust agents in the main are familiar with the need for careful and thorough work in protecting nurseries. That the Bureau of Plant Quarantine has been justified in insisting upon as complete a removal of Ribes as is possible in the vicinity of nurseries, is shown by the fact that several large commercial nurseries to which permits have been refused, now are infected with blister rust because the quality of Ribes eradication around their premises gave only partial protection. In some of these cases the blister rust appears to have been spread to the pines from a surprisingly small number of Ribes within the 1500 foot protective zone.

The new revision of the quarantine effective January 1, 1933, resulted in nurserymen in a number of States in the Middle West applying for permits and attempting to comply with the quarantine regulations and the members of the Blister Rust Control staff in that section have, during the past summer, been going through the same difficulties experienced by the New England group several years ago. In most of these nurseries, Ribes eradication was first reported to have been completed in June and was then checked by an inspector who found many missed bushes. A second attempt was made around some of them in July and the results were still unsatisfactory. It was necessary to rework the environs of the nurseries of practically all of the applicants very vigorously, carefully and efficiently in August and September in order to get out the Ribes so completely that the premises could be considered safe for the future growth of five-leafed pines. In cases where the nurseries were located in areas subject to the spread of blister

rust in past years, it was accordingly necessary to deny permits covering the pines now on their premises and in other cases to limit distribution to the infected States.

When the inspector finds, after the reported completion of Ribes eradication, that the work was not done well enough so that a permit could be issued covering the nursery stock concerned, the nurseryman often becomes highly critical and in some cases may be unwilling to incur the necessary expense of having the environs reworked. It is naturally hard to explain why reeradication should be necessary around the same premises during the same summer. We believe that it is possible to train and supervise a crew so that the plants can be removed at the first attempt, even though it is necessary to run the crew over the same ground in two or more different directions before deciding that the job has been finished. It will, of course, be necessary to go over the same land very carefully each spring thereafter to take care of sprouts and seedlings.

S. B. Fracker and R. A. Sheals,
Bureau of Plant Quarantine.

Comment:

As indicated by the above statement on Nursery Sanitation, considerable trouble was experienced during the past year in freeing some of the protective zones around nurseries of Ribes. These difficulties were due in part to the use of inexperienced crew laborers and foremen, and the lack of sufficient experienced personnel to adequately train and supervise these men. The large expansion of control work under the emergency programs absorbed the few available trained men in the mid-western States. Another factor was an apparent misunderstanding by the men assigned to this work as to the need for more thorough and careful Ribes eradication work around nurseries than is required for the control of the rust in forest stands.

It is well known that Ribes occur in unexpected places and because of this it is necessary to cover every foot of the protective zones around nurseries before one can be certain that, so far as practicable, all of the Ribes have been found and removed. Bushes may be missed because they are hidden by small patches of weeds or thickets. Sometimes they occur in the open beneath apple trees or near small rock piles, or in other spots which are thought to be Ribes-free and for that reason may not have been carefully worked by the crew. Heavily grazed pastures which appear Ribes-free have sometimes been found to contain many closely cropped Ribes bushes, which might be easily overlooked by a scout. No portion of a protective zone should be considered free of Ribes until it has been carefully worked and checked. By following this principle in nursery sanitation work, no dangerous Ribes will be left lurking in unexpected places to endanger the pine. If the bushes exist the men on the job can find them provided they go over the area with enough care.

This spring it is requested that as far as practicable a special effort be made to find and remove every Ribes bush in the protective zones of nurseries applying for pine shipping permits. It requires patient, exacting work. The cost of protection will be proportionately higher than for forest areas, but the value of the stock if produced in reasonable quantities will justify the higher protection costs. Experienced blister rust foremen who appreciate the need for careful and thorough work should be used to train and constantly supervise the crews and the field men in charge of the work should be held personally responsible for checking it and certifying that the quality of the job is satisfactory before it is examined by the Plant Quarantine inspector.

J. F. Martin

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AN ANALYSIS OF DICKINSON COUNTY, MICHIGAN, 1933 ERADICATION REPORTS
F. F. Franklin, Mich.

Mr. Kowatch has rendered excellent reports from this district and they readily yield to an analysis, the data from which should be of benefit to the men in the field making preeradication surveys, especially in the Upper Peninsula of Michigan. Later it is hoped that we can analyze the reports from lower Michigan on a much larger scale and give the field men in that region corresponding information that is much more complete.

The following table gives data regarding Ribes types, with the corresponding time required for eradicating Ribes from a given area. These time factors should be of great help in scheduling man-days (on the preeradication survey) for actual Ribes eradication when the field season opens in 1934. Other information less valuable to the survey workers but generally interesting to control workers is also contained in the table.

Ribes Type	Acres Worked	Aver. No. Ribes Pulled Per Acre	Aver. Work (Man Days) per Acre	Calculated No. Ribes Left by Crew Per Acre	Calculated F.L.S. Left by Crew Per Acre	% Ribes Eradicated by Crew
Swamp	170	340	.68	4.2	5.8	99
Upland Hardwoods	1630	41.2	.18	4.7	11.5	90
Upland Pine	625	30.48	.15	2.27	5.18	93
Upland Pasture	1125	15.32	.12	1.3	1.0	98

ERADICATION TOOLS IN MARYLAND

H. E. Yost

Upon beginning Ribes eradication work in Maryland in September 1933, we planned on using in each crew of eight men, four Ninman farm picks and four hay hooks. However, it was discovered that about one-half of the Ribes bushes found could be properly pulled without using any tool, and practically all of the remainder could be removed with a hay hook, two men pulling together on the larger bushes. Occasionally, a large gooseberry bush was found growing with the crown under a log or in rocks, in which case picks were required to dig it out. It was never found necessary to use a pick, and very rarely a hay hook, when working in skunk currants. Under this condition the men usually would hang the hay hooks on their belts, leaving both hands free for work.

Under our working conditions, we found it best to equip each crew of eight men with seven hay hooks and one farm pick. When one man is working alone, as in scout eradication, a pick should be carried along at all times or should be kept near the place of work. A large percentage of cultivated Ribes will be old and consequently firm rooted enough to require the use of a pick.

The hay hooks were made by a local blacksmith from one-fourth inch iron rod bent in the shape of a rectangle and large enough to form a suitable hand grip. The hooks have a one and one-half inch opening and may be bent in the same plane as the handle or at right angles to it. The cost was twenty cents each. Each hook was given one or two coats of bright yellow paint each week. Two hooks were lost in approximately 320 man days of work; these were replaced by the men.

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ROTH STATE NURSERY IN MICHIGAN REWORKED FOR RIBES

R. I. Thompson

The Roth State Nursery at Higgins Lake, Michigan, which raises trees exclusively for State and private plantings, is one of the largest pine producing nurseries in the country. This nursery and its environs was worked by members of the Higgins E.C.W. Camp, located near Grayling, who performed 80 man days of labor in making a second eradication of Ribes. In addition, members of this same camp protected a white pine planting not far from the Nursery, using 166 man days of labor. A total of 4,662 acres were covered on these two projects by crew and scout work.

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Among many other important projects completed by the Rhode Island Civilian Conservation Corps in the six months period ending January 1, was 5,000 acres of white pine protected from blister rust through scouting for and destroying currant and gooseberry bushes. The Civilian Conservation Corps in Rhode Island is located at three State emergency conservation camps in Charlestown, Glocester and West Greenwich, and the work is under the administration of the State Commissioner of Agriculture and supervised by Associate Forester A. W. Hurford.

A CHALLENGE

F. K. Eldridge, Mass.

My work on blister rust control under Agent Roop in Massachusetts has been an exciting adventure in the field of public service. To make this adventure a pleasure, rather than a hardship, I have endeavored to fit myself to meet the public's challenge.

Every blister rust control field man is aware of the constant shock his nervous system receives at the hands of the public. Amusement one moment, anguish the next, continually throughout the day, often leaves one exhausted and bewildered. The following expressions, although they are used in various temper and dialect, will be recognized among those constantly recorded on the eardrums of every blister rust control representative, particularly those engaged in the removal of cultivated Ribes.

1. "Oh! The white pine blister rust. What kind of a looking bug is that? Where does it lay its eggs?"

2. "So that is what kills our trees. What next will be brought over here from Europe?"

3. "Blister rust (pshaw), why doesn't the State cut down the wild cherry trees and kill some of these caterpillars?"

4. "Oh well, what will the State take away next? Where will we get our currant jelly now?"

5. "Yes, bugs for everything! No use trying to kill them off. My father never had such trouble."

The persons who have expressed themselves have been condemned as hill-billies, cranks, gossipers, etc., but I prefer to consider such expressions as a challenge by the public - DO YOU KNOW YOUR JOB? And that for a field man who knows his job well, they are neither stumbling blocks nor unsuccessful interviews. Field men often expect prospects to react in a manner which is quite impossible. Our prospective cooperators are proud possessors of property. They are quick to defend their belongings, and naturally reluctant to entrust them to unproven hands. Will any sane person trust his life to a doctor in whom he has no confidence? Therefore, field men cannot expect to succeed in obtaining cooperation unless they can first gain public confidence. They must expect to be challenged and be ready to meet tests as many and varied as there are personalities.

I know of no successful formula for dominating prospects or preventing occasional storming by the public, but I do know that with the aid of a smile, one may hold his ground, and that a chance to prove himself will invariably be presented by some statement similar to those I have listed. I have found that such expressions can be successfully met in a manner I will outline.

Expression No. 1, is unmistakably a plea for information. This test may easily be met by using a simple description of blister rust and its control. Expression No. 2 signifies alarm. Watch your own voice and use calm, convincing statements about the history of blister rust, corn borer, and other foreign pests. Expression No. 3 shows knowledge of the

control of other pests. Praise your prospect for what he does know and explain blister rust to him, but be sure you know as much as he does about other pests. Expression No. 4, challenges your knowledge of the policies of blister rust control work and other State projects. Your appeal must be based on public spirit. These cases are easy if you have previously gained the confidence of neighbors. Expression No. 5 shows discouragement or poor success in fighting other pests. If you can help your prospect on some such problem, you immediately gain his confidence. Whatever the challenge may be, you must recognize and meet it in a manner that will prove you know your job.

Although the methods I have described may be debatable, I wish to emphasize the point that little success can be obtained in gaining the public's confidence without a broad knowledge of agriculture and ability to impart such knowledge to all types of people. Even while we are performing control work, our cooperators expect information on various subjects concerning agriculture. You may be able to excuse yourself on unrelated subjects, but you must meet their expectations and win their respect. Every cooperator whose respect you earn will boost your work in the community.

The fate of a blister rust field man rests on his own head. The public is after him at every turn. Can he meet their challenge? Does he know his job well enough to gain their confidence, their appreciation, their respect? If he fails, then the hill-billies will butt him, the cranks will grind him, and the gossipers will hash him, and he might better be a poor little Ribes hiding away in the woods.

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SCOUTING FOR PINE AND RIBES IN WEST VIRGINIA AND VIRGINIA

Mid-December found the E.C.W. blister rust checker in West Virginia still pulling Ribes. On the Watoga Forest area he reports 1,746 Ribes pulled in the week ending December 16, and some 200 acres of white pine scouted and 50 acres cleared of Ribes. In one location he found 600 wild Ribes bushes on an acre of ground.

In Virginia, Mr. Stevens, reporting from State Camp 68, states: "Of the 510 acres scouted during the current week, about 398 acres are in areas with white pine comprising less than five percent of the stand, and 114 acres in areas with five percent or better white pine". He also reports finding cultivated Ribes near homes close to East Hawksbill Creek, east of Ida, and wild Ribes in the upper ends of several draws north of the same creek and also in an area one-half mile south of Ida. Within the working circle of Camp 68, a total of 3,642 acres have been scouted for pine and Ribes.

BLISTER RUST EXHIBIT MATERIAL APPRECIATED

At the request of Mr. Forrest C. Strong, Research Assistant in Plant Pathology at the Michigan State College of Agriculture, a collection of blister rust exhibit material, including six test tube specimens of infected white pine, four large black currant charts and an assortment of blister rust photographs, was recently forwarded to him for use in his classroom and exhibit work. That this material was appreciated is shown by the following comment from Mr. Strong:

"I wish to report the arrival in good condition of the photographs, the four large black currant charts and the six tubes containing aecial material. I am very pleased with the large charts, since I had wished for exactly what they are, and the aecial material is very fine. I plan to place the most, or all of it, in the gelatin solution described some-time ago by Mr. Kermit Miller. The photographs are also well appreciated and the smaller ones I shall put behind glass to keep them from getting dog-eared and preserve the pictures from the wear and tear of classroom and exhibition work."

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A PREERADICATION SURVEY IN THE INLAND EMPIRE

C. C. Strong

A very important accomplishment under the Nira program for the Inland Empire was the preeradication survey during the fall of 1933. Following completion of Ribes eradication activities on the various forest areas, about 90 men were employed from Nira funds for an average period of approximately one month on this preeradication survey. Divided into twelve parties under the supervision of permanent personnel of the Division of Blister Rust Control and the Forest Service, these men operated in north-eastern Washington, north Idaho and northwestern Montana. Had weather been favorable approximately two million acres of forest land supporting the most valuable stands of white pine in the Inland Empire not previously surveyed, would have been covered. Actually about 1,200,000 acres were surveyed. Information secured through the preeradication survey was as follows:

1. Timber type and age class, where accurate data had not been secured through other surveys.
2. Exact boundaries of areas supporting white pine of such value as to justify blister rust control.
3. Ribes distribution and prevalence, and working conditions.
4. Amount of stream type area supporting heavy concentrations of R. petiolare and R. inerme.
5. Other data affecting transportation and location of camps when work is undertaken.

Thus, through the Nira program, this Division has been enabled to do a great amount of work in a short time that serves as an intelligent guide in promotion of the immediate control program. (January 23, 1934).

FURTHER NOTES ON DORMANT RIBES ERADICATION

J. W. Charlton, N. Y.

Checking Last Season's Work

In the March (1933) issue of the Blister Rust News, some notes were made regarding the experimental eradication of dormant Ribes during the fall of 1932. In this work 12 areas containing some 656 acres were worked. One thousand and nine hundred and six Ribes having about 18,510 feet of live stem were destroyed. The areas involved were in various sections of Fulton and Montgomery Counties, New York, and represented various types of conditions, such as open pastures or old meadows, stone walls and fences, ledges, streamside, roadside, woods, and undrained swales or swamps.

A careful check of this work was made in May, 1933. As might be expected, considerable variation in efficiency was found. Certain types showed consistently satisfactory work and other types unsatisfactory work. The following table will show the results. In arriving at the percentage of numbers of Ribes, the total number found was considered as 100%. The percentage of L.B.S. (leaf bearing stem) was similarly taken.

<u>Type</u>	<u>Percentage of No. of Ribes</u>	<u>Percentage of L.B.S.</u>
Pasture or meadow	90	Figures not available
Stone walls and fences	80	97
Ledges	58	Figures not available
Stream bank	73	91
Roadside	85	97
Woods	80	98
Swale or swamp	57	82

The above results show that work with dormant Ribes is possible, and to a considerable extent, practical. This is particularly true in such types as ordinarily would be scouted.

General Characteristics of Ribes

The various species of Ribes have certain characteristics in common which help in winter identification. Among these are branch and bud angles, bark and bud colors, and bud shapes and arrangements.

Although Ribes branches commonly have about a 30° angle from the main canes, the little spur branches and buds, unless changed by nodal spines, generally are at about a 60° angle. In the case of stoloniferous species the canes usually start at about a 60° angle from a perpendicular to the ground, sending up vertical shoots along their lengths. These vertical shoots are quite characteristic and also serve to emphasize the general 60° habit.

Stem colors, especially in the new growth, vary from a tan-gray to a silver-gray. The older growth bark contains more or less of a cherry-red to a mahogany or old walnut color. The buds vary from a silvery-tan to a bright red. All of these shades are more or less constant with the species.

The bud shapes vary from an egg to a spindle-shaped cone. Their arrangement varies from single buds to clustered groupings. In all cases they are alternate, and spirally arranged on the stems, never opposite as in maple, or two ranked as in elm.

In recognizing *Ribes* by their winter characteristics, it is just as necessary to know a number of other common genera as it is to know the *Ribes*, or much time will needlessly be lost. Cherry is probably the most confusing, especially in the early autumn. A number of other genera are somewhat less bothersome, but should be known.

Key to Ribes

1. a. Stems generally armed (especially new growth); leaf scars very narrow. (7)
b. Stems unarmed. (2)
2. a. Buds more or less egg-shaped, glandular or minutely hairy; leaf scars rather broad. (3)
b. Buds elongated, almost spindle or cone-shaped; leaf scars narrow; twigs buff, terminal buds generally red, stoloniferous. (*R. glandulosum*)
3. a. Bud scales and twigs with some resin glands, almost smooth. (4)
b. Without resin glands; buds gray-downy. (5)
4. a. Resin glands minute; buds almost white to reddish purple; stems round, tan-colored; wood fetid. (*R. nigrum*)
b. Resin glands large; stems ridged, somewhat gray. (*R. americanum*)
5. a. Twigs quickly smooth, olive brown. (6)
b. Twigs rather persistently gray-downy; stems brown; generally ornamental, tall (*R. aureum* or *odoratum*)
6. a. Bushy (unless escaped), commonly planted; buds usually bunched; twigs rather stout. (*R. sativum*)
b. Spreading and stoloniferous; twigs more slender, tan. (*R. triste*)
7. a. Buds short (1/8 in.), somewhat egg-shaped, downy; nodal spines usually 1. (*R. rotundifolium*)
b. Buds long (about 1/4 in.), more or less cone-shaped. (8)
8. a. Nodal spines scarcely larger than prickles; new growth glossy tan, densely covered with prickles; older growth with gray-brown bark and prickles exfoliating. (*R. lacustre*)
b. Nodal spines 1 to 3, longer if accompanied by stem prickles. (9)
9. a. Twigs nearly white, with exfoliating bark; often more or less unarmed. (*R. hirtellum*)
b. Bark more persistent. Generally armed. (10)
10. a. Bud scales keeled, more or less silky; nodal spines usually 3, amber colored. (*R. coynosbati*)
b. Scales not keeled, smooth; nodal spines very heavy; generally cultivated. (*R. reclinata*)

Note: This key attempts to classify only the *Ribes* which might be expected in New York. The characteristics used in the key were those which seemed to be relatively constant under field conditions. There are other characteristics which might be added or substituted, but those above seem to work with reasonable efficiency, making the key workable without getting it too long or complicated.

Genera or Species Most Commonly Confused with Ribes

In the following, which at first may easily be confused with Ribes, an attempt has been made merely to give the outstanding similarities and differences - those which first catch the eye, and are somewhat constant under the great variety of field conditions. A little practice will soon familiarize the observer with the relative constancy of certain of these characteristics. The eye ordinarily seems to catch, first, stem and bud angles; second, stem and bud colors; third, bud shapes, forms, and formations; and fourth, any other necessary or outstanding characteristics.

<u>Genera or Species</u>	<u>Similarities</u>	<u>Differences</u>
Cherry	Stem angles and elongated buds.	Angle of buds 30° or less, and pewter-gray color of new growth twigs. Pungent odor.
Birch	Stem color, bud angles, and bracts suggesting spines.	Olive color of lower bark, transverse lenticles, and bracts rather than spines. Wintergreen odor.
Barberry	Armed stems and reddish buds.	Bud angles 30° or less, buds blunt, no leaf scars.
Brambles	Armed stems, color of many stems.	Stems often zig-zag characteristically, and almost always contain a patch of mauve or horizon-blue near the nodes. Leaf bases persistent and ragged.
Witchhazel	Stem angles and color.	Stalked velvety brown or gray buds. Very noticeable.
High-bush blueberry	Stem angles and color.	Buds small, red, short; twigs red or green, hairy.
Daphne	Stocky gray stems, angles and growth-form of bush.	Buds brown or green, close, often bunching characteristically. Frequent opposite branching.
Thorn apple.	Stocky gray stem; spines.	Buds red, almost spherical, close; spines are thorns.
Basswood	Stocky gray stems.	Buds green or red, oval, close
Beech	Long spindle-like buds.	Bud angles 30° to 45°, buds very long.

COMMENTS ON BLACK CURRANT LOCATION WORK

E. M. Brockway, Mass.

In our black currant canvass under the Civil Works Administration program, we are following the same procedure as heretofore in soliciting the cooperation of the owners in the actual removal of the bushes. We leave with the owner a franked postal card, on which to report the removal of the bushes. It is obviously impossible to adequately remove Ribes at the present season, but we have been favored with the usual spirit of cooperation from owners, and some have gone out of their way to advise us of their willingness to remove the bushes when conditions are more favorable. A few of these responses follow:

"In response to your request, I will pull up and destroy the European black currant bushes on my property as soon as the weather permits."

"In the spring I shall gladly pull up and burn my bushes in response to your request. Thank you."

"The ground is frozen and I am unable at present to take up the bushes, but assure you I will do so when conditions permit."

"I have planted one Japonica Bush where the black currant was."

All of which is helpful.

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BLISTER RUST INFECTIONS IN RHODE ISLAND

L. W. Hodgkins

Blister Rust Agent White and I working in Rhode Island have completed the inspection of plantations. Thirteen plantations were examined and blister rust found in eleven of them. Origin of infection ranged from 1926 to 1929 as follows: 1 - 1926, 4 - 1927, 24 - 1928, and 7 - 1929.

This week (February 5-10) we have been scouting for the rust on native white pines in Foster, Coventry and West Greenwich and have succeeded in finding blister rust in all three towns at four locations, namely, one in Foster (1926 origin), two in Coventry (1925 and 1927 origin), and one in West Greenwich (1923 origin). I believe all of the infections have come from wild Ribes. I found wild Ribes, probably hirtellum, in Coventry not far from where the pine infection was found by Agent White. The snow has been a hindrance in our work as many of the smaller pines are under the snow and the larger, or the 6 to 10 year trees, are blocked with it, especially the lower part of the trunk and branches. The plans now are to carry on this scouting work another week, or perhaps longer, in order to get work lined up for next season's eradication work.

SUMMARY OF NIRA BLISTER RUST CONTROL ACTIVITIES IN THE
NORTHEASTERN STATES DURING DECEMBER, 1933

E. C. Filler

During December, 1933, the field activities on blister rust control under the Nira program in the Northeastern States were confined chiefly to systematic mapping of pine and control areas in preparation for next year's Ribes eradication work. This mapping is an essential part of control work, and an important factor in reducing eradication costs. A total of 48 temporary agents (34 of them in New Hampshire and New York) were employed on this project for 795-7/8 man days. In addition, 34 laborers spent 3,187½ man days on such work in New York and Pennsylvania. A total of 102,842 acres of pine and protection zones were mapped in 73 towns in 33 counties.

One additional temporary agent was also employed in Massachusetts during the entire month directing the activities of the C.W.A. laborers working on treatment of diseased white pines in State plantations. In Connecticut, one additional temporary agent supervised a crew of C.W.A. laborers being used on the black currant elimination (cultivated Ribes survey) project. In connection with this work, 68 patches of Ribes, containing 788 bushes, were located.

The permanent blister rust control agents in the Northeastern States who were also paid from Nira funds, gave direct supervision to the mapping work being conducted by temporary agents in their respective districts. In addition, the Maine agents mapped 19,370 acres of pine and protection zones and eliminated 51,613 acres of non-pine land in eight towns in six counties; such work consuming 54% of their total time. The New Hampshire agents also assisted in supervising blister rust control and related forestry projects employing 1,500 men in connection with the C.W.A. program in that State. Two of the Vermont agents spent 40 man days mapping pine on 7,500 acres in four towns in two counties. In Massachusetts, the four permanent agents continued to supervise the C.W.A. project employing 100 laborers and 30 skilled workmen on the treatment of diseased pines in State plantations and cultivated black currant elimination work. The results accomplished under this project in Massachusetts during December were as follows:

Treatment of Diseased Pines

Estimated acreage of pine examined.....	1,900
No. stem cankered pines removed.....	3,437
No. pines treated for branch cankers only.....	3,965
(Laborers.....	8,749
Man-hours -(Foremen.....	1,696

Black Currant Elimination

No. places inspected.....35,221
No. patches black currants found 237
No. bushes found 1,110
Man hours - foremen (no laborers employed).... 1,696

Seven of the New York agents spent the greater part of their time in supervising the mapping work performed by the temporary agents and laborers, while the other three district agents were personally engaged in mapping pine areas in several towns.

In addition to the above work, the permanent agents in all States carried on various educational and service activities and completed a summarization and analysis of the 1933 control projects in their respective districts. (January 17, 1934)

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C.W.A. CULTIVATED BLACK CURRANT ERADICATION WORK
INCREASED 100% IN MICHIGAN
E. C. Mandenberg

In the January Blister Rust News we reported 10 counties engaged in the cultivated black currant eradication project using C.W.A. funds. In addition to the counties mentioned at that time we are now working in the following counties:

Montmorency	Manistee
Alpena	Lake
Leelanau	Kent
Oscoda	Ottawa
Alcona	Sanilac
Ogemaw	

In addition four other counties have approved the project, but their quota of men is filled and funds have dwindled so that the work will not start unless C.W.A. projects are extended beyond February 15.

Up to the week ending January 27 approximately 2,816 square miles of territory have been freed of cultivated black currants in the State of Michigan.

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CWA WORKERS FIND PINE INFECTION IN WASHBURN COUNTY, WISCONSIN
H. N. Putnam

Pine infection was found for the first time in Washburn County, Wisconsin by a CWA crew in Section 5, Township 42 N, and Range 10 W on December 17, and in Section 32, Township 37 N, Range 13 W on December 28.

BLISTER RUST DISCOVERED ON PINE IN GARRETT COUNTY, MARYLAND

A suspicious looking specimen of white pine collected in January by Mr. H. E. Yost at Bittinger, Garrett County, Maryland, was forwarded to the Division of Forest Pathology for examination and identification, who have replied as follows:

"We have carefully examined sections of the pine twig made near the point of the girdle and find the bark infected with a fungus which has a large mycelium. This has all the appearance of being Cronartium ribicola. There also seems to be some other fungus present, however, since the sections show a considerable amount of finer hyphae, some of which are brown."

Several additional specimens of white pine with the pronounced swelling of twigs characteristic of the blister rust were collected at Bittinger in February.

Mr. Yost later in January collected another specimen of white pine, at Negro Mountain in Garrett County, within a mile of the Pennsylvania line, which was also identified by the Division of Forest Pathology as being infected with blister rust. These two locations (Bittinger and Negro Mountain) are about seven miles apart.

R.G.P.

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NOTES ON C.W.A. WORK IN MICHIGAN AND IOWA

Palmer Larsen

In the village of St. Ignace in Mackinac County, Michigan, two locations of black currants infected with blister rust were found by men working on C.W.A. funds. This is the first time that blister rust has been reported from Mackinac County. It is gratifying to learn of the interest shown by the C.W.A. men in their work. Recently, a snow storm had blocked the roads just outside of St. Ignace, so the men went to the nearby Road Commission warehouse and prevailed upon those in charge to open up the roads, after which the black currant eradication work was continued.

Two C.W.A. men in Michigan have been engaged in the pruning of cankers, and to date (January 20) 115 acres of white pine have been treated and 1,055 cankers removed.

Twenty C.W.A. laborers are employed in Iowa. They work in crews of two men each, each crew being assigned to a county. The field work consists entirely of location and preeradication surveys of all coniferous shelterbelts, and securing data on all white pine shelterbelts.

BLISTER RUST CONDITIONS IN ACADIA NATIONAL PARK,
DECEMBER 1, 1933.

S. D. Conner, Supt.,
Bar Harbor C. C. Camp.

Wherever white pine occurs on Mt. Desert Island, Maine, one will also find blister rust. This is undoubtedly due to the prevalence of Ribes, together with the fact that during the latter part of the summer season, weather conditions are ideal for the spread of the disease. The cool damp weather, absence of sunshine and persistent air currents are all factors that have had their influence on the unusually heavy infection on the Island. The amount of infection, and the damage and the intensity of infection are best shown by data taken in the field. In order to get representative figures for infection in the Park, three 1/4 acre plots were taken in widely separated areas and in different age classes, and this does, I believe, represent blister rust infection conditions over the entire Park area.

Plot No. 1

This plot is located at Sieur de Mont Spring, and the pine growth consists of reproduction with an average height of five feet. There are 268 pines on the quarter acre; 19 have been killed by blister rust, 25 have trunk cankers and will die within the next two years, and 21 others have branch cankers and will eventually die. To summarize conditions on this plot, we find that 24% of the pines were infected with blister rust before the eradication work was done and of this number 68% of the diseased trees are dead or dying, while the remaining 32% will die within the next few years.

Plot No. 2

This plot was taken near the head of Somes Sound and showed 45 pine trees on the plot. The average height of the trees was thirty feet. There were 2 trees killed by blister rust, 6 trees with trunk cankers and 12 trees with one or more branch cankers. Here we find 44% of the pines infected with blister rust and of this number 36% are either dead or in a dying condition, and the remaining 64% have one or more branch cankers and will eventually die.

Plot No. 3

This plot is located at Hulls Cove near Lakewood. There were 316 pines on the plot and the average height was twelve feet. 108 of the trees were infected with blister rust. Of this number 37% are dead, 55% are diseased with trunk cankers and will die within the next three years, and 10% have branch cankers and will eventually die. One of the conspicuous facts on this plot is the absence of new branch infections and this can be credited to the initial eradication of Ribes which was performed in 1928.

In some localities in the Park area, infection is much more intense than these plots indicate. During the past week one of the blister rust control crews pruned 102 individual blister rust cankers from one tree near the trail on the easterly side of Newport Mt. From this trail, the pines in the valley below would be beautiful except for the "burned up" appearance due to the large number of infections per tree.

To sum up conditions as they appear in the Park area, we must first agree that northern white pine (Pinus strobus) is the dominating tree on much of the Park area. The tree is well suited for the area because it is its native habitant, and its conformity, picturesqueness and longevity make it especially desirable for Park purposes. That the tree is severely and dangerously attacked by blister rust is an admitted fact, but the fact that control measures are both practical and economical has also been clearly demonstrated by the past work on the Park areas.

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WHITE PINE MAPPING IN MINNESOTA

Joseph Mockford

Since December 5th, I have been on blister rust control work, mapping white pine areas. Our force consists of two 2-men crews; however, the men are equipped to work independently of each other. In our mapping work we use the regular land classification type symbols. Pine areas are mapped showing stocking and the surrounding timber types. Ribes abundance is noted, and also the disease if found.

The snow is now about three feet deep in the woods. We have equipped ourselves with snowshoes and are sure getting over the ever-deepening snow. The line blazes in some areas are but knee high because of the amount of snow. The weather has been fair and not a hindrance to the work so far.

With the completion of the pine mapping program and the later eradication of Ribes, blister rust control will be established for the better white pine areas, and an important step in the State's forest protection program will be accomplished. The white pine reproduction is on the way to bring back what were awhile back, white pine forests.

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PRECAUTION AGAINST TYPHOID IN C.W.A. ACTIVITIES

G. S. Doore, Mass.

When we outlined our canker elimination project under the C.W.A. program, we were not aware of the precautions that were taken to protect the public water supplies in Massachusetts, or at least in Berkshire County, from possible pollution. Upon approaching the authorities of the City of Pittsfield water supply, we found that no men would be allowed on the watershed until they had submitted to tests for typhoid and para-typhoid. Accordingly, 22 of our C.W.A. men were obliged to submit to the test before we could proceed.

PREERADICATION ACTIVITIES IN DISTRICT NO. 2 MINNESOTA

E. B. Dahl.

The range of white pine in this state is now divided into three districts for the purpose of carrying out an intensive white pine blister rust control program. District #1 consists of the area south of a line drawn east and west through the town of Hinckley, and will be handled out of the Saint Paul office. District #2 consists of the area north of District #1, and extending as far west as the Mississippi River and the county line between St. Louis and Itasca Counties; Duluth is the headquarters for this district. District #3 is made up of the area west of the Mississippi River and St. Louis County with headquarters at Bemidji. The work is being supervised by State Leader L. B. Ritter in District #1, by E. B. Dahl, in District #2, and J. H. Ayars in District #3.

The work this past fall and winter has consisted entirely of preeradication activities. By this is meant the mapping of all white pine areas considered worthy of protection, as well as estimating the amount of labor and time necessary for their protection. The data thus secured is necessary in planning a comprehensive and intelligent control program. Practically all of District #2 has now been covered by this survey except those areas within State and National Forests. However, one State Forest has been included, that one being the Cloquet Valley Forest, which is worthy of special mention because of the considerable amount of second growth white pine which it contains. There is a general scattering of white pine over a considerable portion of this Forest, with about 2,000 acres supporting stands of $\frac{1}{4}$ stocking or better.

Work was begun in the Cloquet Valley Forest January 5th, by Agents Hope, Nelson, Mockford, and Dahl. Most of the more accessible stands had been mapped and some areas protected under the supervision of Blister Rust Checker E. Kukachka, working out of E.C.W. Camp 51-S. There remained a number of areas to be mapped, most of which were rather inaccessible and considerable footwork was required to reach them. A total of 588 acres of young white pine, of $\frac{1}{4}$ stocking or more, were mapped, besides 900 acres immediately adjoining the southern Forest boundary in T53N-R14W. Pine infections were found in three areas, of which one small 15-acre stand was heavily infected; 10%-15% of the trees having from one to four branch infections each and some showing main stem infections. Duplicate maps were prepared of the stands within the Forest and left with Patrolman J. C. Ryan.

We are taking this opportunity to express our appreciation to the State Forest Service men for the fine cooperation extended us during this work. Every Forest Service man contacted has helped a great deal, especially in the way of locating pine areas and allowing us the use of Forest Service bunk rooms whenever possible. We sincerely wish to continue and foster this relationship.

(Note: The preeradication survey of the Superior National Forest has been completed except for a few small inaccessible areas of white pine. Mr. Dahl's next job is the Grand Portage State Forest. No doubt he will have it completed by the time this appears in print. The balance of the State Forest Lands have been "looked at" by blister rust checkers working out of E.C.W. Camps. - L. B. Ritter.)

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Anonymous - "Sugar Pine, Pinus lambertiana, Douglas". American Forests, February 1934, p. 78-79.

Hartley, Carl, Boyce, J. S., et al - "The Progress of Forest Pathology". From "A National Plan for American Forestry", a Report Prepared by the Forest Service, U. S. Dept. of Agric. in Response to S. Res. 175 (72d Congress). Senate Document No. 12 (73d Congress) - Separate No. 28. 1933.

Hatch, A. B., and Doak, K. D. - Mycorrhizal and Other Features of the Root Systems of Pinus. Journ. Arnold Arboretum, XIV, 1, pp. 85-99, 4 pl., 1 fig. 1933. (Extract in "The Review of Applied Mycology", June 1933.)

(Note: The writers have investigated the mycorrhizal and non-mycorrhizal root systems of Pinus strobus and P. sylvestris. In seedlings of P. strobus and P. sylvestris in pot cultures one of the writers observed that mycorrhizal development may occur at the tips of the long roots in the autumn, after their elongation has almost ceased.

The short roots may be divided into three kinds, namely, uninfected, infected without mycorrhizal structure (pseudo-mycorrhiza), and infected with mycorrhizal structure (mycorrhiza). The first type is stated to be extremely rare, probably occurring only in pure cultures and in open, mineral solution sand cultures free from organic substances.

Judging by the very slow growth of uninfected short roots, the writers find little support for the numerous references in the literature to the cessation of root growth following invasion by mycorrhizal fungi. On the contrary, the profuse dichotomy occurring after infection is a manifestation of continued growth that is probably restricted to the mycorrhizal roots. In one mycorrhizal short root of a test seedling of P. strobus there were some 50 individual growing tips, while 84 were counted in another case. There was no evidence that the total length to any one of these tips was less than would have been reached by an uninfected short root. - R. G. Pierce.)

Pack, C. L. - "Blister Busters". Scient. Amer. 150:61-63, illus. February 1934. No. 2.

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CONTROL WORK ON THE OGEMAW STATE FOREST DURING 1933

R. I. Thompson, Mich.

On the Ogemaw State Forest in Michigan there is an excellent planting of white pine running from 6 to 15 years old. During the season of 1933, a total of 1,166 acres of pine on the Forest were protected, 499 man days of C.C.C. labor being used. (The Ogemaw E.C.W. Camp is located within the boundaries of this Forest.) The total area scouted and worked by crew on this project was 2,117 acres.

March, 1934

THE BLISTER RUST NEWS

Issued by the Division of Plant Disease Eradication
and Control and the Cooperating States.

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U. S. Department of Agriculture
Bureau of Entomology
Division of Plant Disease Eradication and Control
Washington, D.C.

BLISTER RUST CONTROL WORK IN MAINE DURING 1933

W. O. Frost

Blister rust control work in Maine for 1933 was characterized by unprecedented events and revolutionary changes. Beginning the year with prospects appearing none too bright for a successful season, events came to pass completely changing the picture from one of doubt and misgiving to one of unusual activity and success.

The new order ushered into being the Civilian Conservation Corps and with it new life and energy for blister rust control. Camps were established at Lewiston, Alfred, and Jefferson completely devoted to blister rust work for the duration of the season. In addition, the Federal C.C.C. camp at Stow included in its program a blister rust project under our supervision. The majority of our permanent and temporary personnel were placed as foremen and checkers in these camps, with Agents Curtis, Kimball, and White acting as Camp Superintendents. We had been given a free hand, and it was our job to educate and train the inexperienced men at our disposal, developing them into efficient workers in blister rust eradication methods. The camp boys as a whole adapted themselves to the work surprisingly well, and, considering the number of men available for field work, accomplished a fair amount of control work for the season which will compare favorably with our regular work.

In August we were notified of the National Industrial Recovery Act funds allocated to the Bureau of Plant Industry for the use of the Division of Blister Rust Control, with the request that we immediately place in the field as many unemployed men as could be supervised. As three of our four permanent agents were C.C.C. Superintendents, and practically all of our experienced foremen and scouts were also at the camps, this new project appeared difficult to handle. The eradication season was in its last quarter. Ribes were losing their leaves, and fall rains were about due, which would cause a more rapid defoliation of the remaining leaves. The job could be done, but no time should be lost - quick action was necessary. Fortunately, Agent Bradbury had just finished the work in his district and was able to select men with crew experience to act as supervisors and foremen for the Nira crews. Within a very short time after receiving final orders from Washington, we had 118 men at work in 8 towns. Eradication work under the Nira program began September 5 and ended September 23, being conducted in the towns of Belfast, Swanville, Camden, Lincolnville, Rockport, Union, Winterport, and Bangor, all coast towns. The reason for selecting these towns is that Ribes retain their leaves later in the fall in coast towns than in towns farther inland. The laborers ranged from 18 to 45 years of age, most of whom had been unemployed for a year or more, and with dependents. They were anxious to work and proved their willingness by rapidly becoming efficient Ribes removers. Agent Bradbury reports, "On the whole these men were quick in learning what was expected of them and did good work. About 75% of them are qualified to return on the work another year either as straw bosses or crew members."

A summary of the blister rust control work performed in the State during 1933 under the three major divisions or projects, that is, Regular Cooperative Control Work, Emergency Conservation Work, and National Industrial Recovery Act Work, is given in the following table:

Project	Acreage Eradicated	No. Wild Ribes Destroyed	No. Cult. Ribes Destroyed	Cost	Per Acre Cost	Ribes per Acre
Regular Work	26,035	613,906	709	\$7,248.58	\$.28	24
C.C.C. Work	58,135	1,358,992	3,838	85,335½ man hrs.* 76½ man days**		23
N.I.R.A. Work	5,185	146,392	228	\$5,260.70***	1.01	28
Total or Average	89,355	2,119,290	4,775			24

* Enlisted personnel eradicating Ribes.

** Supervisory personnel scouting.

*** Includes transportation and actual eradication time of laborers and foremen.

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BLISTER RUST ACTIVITIES IN MICHIGAN UNDER THE CWA
E. C. Mandenberg

Our first project under the CWA started in the Upper Peninsula of Michigan on December 11, and our last project got under way February 11. CWA work is now being carried on in twenty-three counties. In twenty-one counties we are doing black currant eradication work; in one county canker pruning work, and in another we have a timber cruiser helping with pre-eradication survey work. In the counties where black currant eradication has been carried on, the workers have been receiving splendid cooperation and have made some real headway in blister rust control work as the following figures will show:

No. of <u>Ribes nigrum</u> locations found.....	420
No. of <u>Ribes nigrum</u> bushes found.....	2,692
No. of locations of Ribes other than <u>nigrum</u>	2,475
No. of bushes other than <u>nigrum</u>	50,919
No. of inspections.....	17,350
Total square miles in which black currants have been eradicated.....	3,587

In the county where the canker pruning work has been carried on, 17,035 cankers have been removed and 4,040 acres of pines have been treated, requiring 52½ man days.

PERMANENT C. C. C. DETAILS ESSENTIAL TO EFFECTIVE CONTROL
G.S. Doore, Massachusetts.

As we examine in retrospect the E.C.W. blister rust control activities of the 1933 field season, it is quite clear that one of our most serious problems was to secure adequate and permanent crew personnel for our phase of the work at the C.C.C. camps. Some days, a whole crew would be taken from the rust control detail; at other times a foreman, linemen or crew men would be missing; and advance notice was seldom given that the men would not be available. Some of the numerous reasons for breaking into the rust control details, at least as we have recorded them in this territory are listed as follows:- road construction, cutting brush, bridge work, ditching, kitchen police, camp detail, sickness, on leave, holidays, extended leave, at camp for pay, camp inspection, lack of transportation, and so on. It would help greatly in accomplishing effective work another season if blister rust control work is allotted a definite number of men daily and if these same men are made available each day for the duration of the work.

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BLISTER RUST INFECTION HEAVY IN CLARION COUNTY, PENNSYLVANIA
Marco De Berti

Practically every stand of white pine in Clarion County, Pennsylvania, is heavily infected with blister rust to some extent. Of course, some stands are more heavily infected than others, but as a rule some degree of infection can be picked up on most all the stands. There is no question but that if control work is not carried on in the near future on privately owned areas many of the stands will be severely injured.

Clarion County is an excellent natural habitat for Ribes bushes. Their occurrence is in such great profusion and abundance that in many localities they make the chief cover crop. It would be safe to make the statement that this county leads all other counties in Pennsylvania in the size and numbers of wild Ribes. As conditions exist at present it would appear that the young stands of white pine reproduction do not have a chance against their mortal enemy blister rust, but it is encouraging and gratifying to know that some help will soon be at hand. To Clarion County this help cannot come too soon.

In this section of the State the best pine areas are usually located along streams and although the stands of pine may be only 200 or 300 feet in width, they extend for miles along the course of the streams. Such stands are commonly intermixed with hemlock, and it is in such conditions where the greatest numbers of Ribes are found.

Although numerous cankers can be found on all types of trees, no infections have been located on trees over 6 inches in diameter and higher than 40 feet. Since it is rather uncommon to find cankers on the trees higher than 20 feet above the ground, white pine stands which are thrifty, growing rapidly, naturally pruned, and over 40 feet in height have a fair fighting chance against blister rust in this locality. On the other hand any young reproduction up to 20 feet in height which is slow growing and suppressed by hardwoods will be seriously impaired if no protective measures are administered.

The foregoing statements are based on casual observations made by the writer while surveying white pine areas in preparation for blister rust control work, and only intended to show the apparent condition of blister rust in Clarion County. (Extract from Service Letter of the Pa. Dept. of Forests and Waters, Feb. 22, 1934.)

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C.C.C. ENROLLED MEN PASS BLISTER RUST CONTROL EXAMINATION

C. C. Perry, Massachusetts

During the month of August the annual written examination which it has been our practice to give to our field men was given to our regular men. We had planned to extend the examination to those men enrolled in the E.C.W. camps who had been acting as crew foremen. The plan did not materialize as we had hoped, but two E.C.W. sub-foremen at the Erving State Forest Camp took the examination as test cases. It will be readily understood that the E.C.W. men have not had the experience of contacting prospective co-operators and have had no need to be familiar with the State blister rust control law and regulations. In spite of these deficiencies, these two men with their actual field work plus their study of our "Manual for Field Men" were enabled to write highly commendable papers. The paper of one received a rating of 80% and the other a rating of 84%. We are hopeful that when the 1934 field season opens, regular positions will be available to such men as these. They are deserving!

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LAST VIRGIN PINE LOGS ON DISPLAY IN MONTCALM COUNTY, MICHIGAN

(Extract from Greenville, Michigan, Newspaper)

People of this community will be treated to an unusual sight when a truck load of virgin pine logs, weighing about 23 tons, will be trucked through the business section. The timber is of the Michigan white pine variety and was cut from the 30-acre tract recently purchased from E. J. Bigler by James Schnepf, who is operating a sawmill near Ziegenfuss Lake. The virgin timber stood at the head of the lake, and many of the trees are of unusual size. There will be six or seven logs on the load, which will measure 16 feet in length, and after they have been exhibited here they will be taken back to the mill and cut into lumber which will be used at the Gibson Refrigerator plant.

Mr. Bigler informs this paper that as far as he knows this is the last tract of virgin pine anywhere in this part of the State. It will give old-timers a touch of the old logging days when timber was one of the principal industries.

(Note: One of our blister rust mappers working in Montcalm County sent in the above clipping from the Greenville paper. He informs me that the pine area mentioned is about 30 acres of a total of 100 acres which we recently surveyed. - E. C. Mandenberg)

CWA-BRC WORK A SUCCESS IN WISCONSIN

Harry G. Luer

As a result of an appropriation from CWA funds, preeradication survey work in Wisconsin has been carried on so extensively that by April first every important pine producing county will be thoroughly covered and the necessary data recorded.

Although blister rust foremen and checkers have been mapping from 14 E.C.W. camps since last September, many counties in the State could not be reached from these camps. Consequently, Mr. E. L. Chambers, State Entomologist requested an appropriation based on a plan of work which would cover those portions of the State not accessible to the established blister rust personnel. The plan provided for ten crews of four men each, each crew consisting of one foreman, two field men, and one draftsman who would do all of the office work as well as some field work. A surprising number of well qualified men were listed on the unemployed rolls, and it was not difficult to obtain well balanced crews which, with about a week's training, turned out exceptionally good work. In almost every crew, men with engineering and forestry training recorded the field data with professional accuracy and turned it in to the crew draftsman, who in most cases was a registered draftsman, architect or commercial artist. The resulting maps were actually works of art.

Up to February 15 approximately ten thousand dollars of CWA funds were used. The unfamiliar but welcome checks, as well as the interesting features of the work, were such an incentive to these formerly unemployed men that it was a problem in itself to keep them supplied with mapping paper as well as other field supplies. By the middle of February five counties were completed and seven other counties were more than half completed. In this area more than 26,000 acres of good white pine were mapped, and at the same time data on Ribes conditions, as well as working conditions, were recorded so that eradication estimates could be prepared from the records.

In view of these facts, the CWA has proven successful in blister rust preeradication work since it has enabled the State, in cooperation with the Federal Government, to make the first thorough and accurate survey of white pine in Wisconsin. It has provided the means of supplementing the work of E.C.W. camps and N.R.A. work in order to fill in those gaps which would not have been covered this year under the regular set-up. In addition, a number of well qualified men have been brought to the attention of the blister rust supervisory personnel, many of whom will probably be used in an extensive eradication campaign next summer.

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TREE PLANTING OPERATIONS IN PENNSYLVANIA

One hundred thousand white pine seedlings are to be planted next spring at the Pymatuning Reservoir in Crawford County, Pennsylvania, during the largest individual tree planting operation ever undertaken in that State. Other trees to be planted at this time are Norway spruce, white spruce, red pine, pitch pine, Scotch pine and Japanese larch, making a total of 1,000,000 trees to be planted.

BLISTER RUST INFORMATIONAL ACTIVITIES AT THE C.C.C. CAMPS
IN FRANKLIN AND BERKSHIRE COUNTIES, MASSACHUSETTS.

G. S. Doore

It was our special endeavor during the 1933 field season to develop a lively interest in blister rust control in the men enrolled at the C.C.C. camps in the territory under our jurisdiction. The splendid cooperation accorded us has been extremely helpful. Our efforts were divided along two lines, namely, talks both with small groups, and with the entire personnel.

In the first phase, fifteen small groups totaling 110 men from the five cooperating camps in this territory heard talks on the rust. These talks were given under varying circumstances. The Sandisfield boys "listened-in" from their pile of boards; the Otis group heard the story while standing in the Army trucks, the Agent using the truck cab as a platform; the Great Barrington gatherings took place in the E.C.W. administration tent, pine plantation and pine slash lot. At Savoy, talks were given in the building housing the superintendents and technical foremen from the two companies and also in pine plantations. Boys from the Erving camp heard the "broadcast" from the company street, in the vicinity of the State Forest Nursery, and at the State Forest Camping Ground in the midst of a white pine plantation which had been recently pruned. Practically every talk was followed by demonstrations in eradication methods, damage and disease.

In the instance of the larger type of meeting, one example will suffice. The meeting at the Savoy State Forest Camp took place on the evening of October 27. The meeting was held in the Mess Hall and 180 out of the 197 men in camp attended. This included the officers and the K.P.'s on the night shift. The stereomotograph was used to show the usual standard set of slides during the evening and the machine was left at the camp in charge of the captain for further operation as seemed advisable. The audience appeared to be very much interested and asked many questions. They were very generous with applause and a rising vote of thanks was extended at the close of the meeting.

The development of a helpful interest in our work has shown a steady increase since the activity started. As a result of our informational talks during 1933, some 1,400 to 2,000 E.C.W. men have learned considerable about blister rust control. As these men return to regular civilian life, as many already have, they are sure to stimulate and develop a keener interest among their acquaintances and our work will not have been in vain.

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STATUS OF BLISTER RUST WORK IN RHODE ISLAND

L. W. Hodgkins

New locations of the rust have been found in South Kingstown; Smithfield, Glocester and Barrington and there are still a few more towns to be gone into to learn the conditions as to the prevalence of blister rust on pine and the need for reeradication work for the coming season.

OFFICE COMMENT

NECESSITY FOR CARE IN ADDRESSING MAIL

S. A. Rohwer, Acting Chief of Bureau.

(Administrative Memo #109-BE, February 15, 1934.)

The following memorandum from the Director of Personnel and Business Administration of the Department is quoted for the information of all employees:

"Mr. Frank C. Walker, Executive Secretary of the Executive Council has brought to the attention of the Secretary of Agriculture a report submitted by the Postmaster General covering a count of improperly addressed mail received at sixty-five of the largest post offices from December 1 to 15, inclusive. The report indicates that during the period 1,446 pieces of mail dispatched by the Department of Agriculture required directory service and that 1,018 pieces were returned to the Department for better addresses. Although the record of the Department is reasonably good in that only slightly in excess of four percent of the improperly addressed material was dispatched by our various offices, yet it is evident that material improvement is possible. On the basis of the count made it would appear that approximately sixty thousand incorrectly or improperly addressed pieces of mail matter are received from this Department by the sixty-five post offices during a single year. This represents a very material increase in the work to be performed by the employees of the Post Office Department and as it is entirely unproductive from the standpoint of improved mail service, every effort should be made by our various organizations to reduce the figure as much as possible. It is suggested that this situation be brought to the attention of all responsible officials and employees, and that particular efforts be made to reduce the number of mailings which are so improperly addressed as to require return to the writer."

All bureau representatives are directed to take all possible steps to see that mail going out from their respective offices contains an address which will insure prompt and satisfactory handlings.

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REIMBURSEMENT FOR TELEPHONE CALLS

H. P. Avery

Where an employee makes a number of calls from his headquarters during the month, the total of which exceeds \$1.00, a subvoucher showing payment for these calls should be submitted. Where a number of calls are made at headquarters, the total of which is \$1.00 or less, no subvoucher is necessary. When calls are made away from headquarters and the amount of any one does not exceed \$1.00 no subvoucher is necessary. Single calls made away from headquarters exceeding \$1.00 require a subvoucher. Where long distance calls are made, the name of the person called, length of time consumed, points between which calls were made, together with a statement that the calls are official, should be given. In any case, where calls are made from automatic telephones, which makes it impossible to get a receipt, a statement to that effect must be made in the voucher.

CLAIMS FOR COMPENSATION

In view of circumstances that may exist, particularly in the mountainous regions where it is sometimes difficult for an employee to secure a notary's signature without considerable expense and loss of time to the Government, the United States Employees' Compensation Commission has ruled as followw:

"An injured employee who is in an isolated locality and unable to appear before a notary public or other official authorized to administer oaths generally, may certify to the correctness of his statements in the claim for compensation before his official superior."

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GROWTH RATE OF WHITE PINE

H. T. Wright

In an article entitled "Growth Rate of White Pine in the Southern Appalachians and New England" by Mr. J. T. Kimberly, which appeared in the December Journal of Forestry, an interesting comparison is given of the growth of white pine (Pinus strobus L.) in the two regions. This comparison bears out the general belief that white pine grows more rapidly and to larger dimensions in the southern extremes of its range.

In this comparison the South is represented by white pine growing on the Cooper Creek watershed in the mountains of northern Georgia; the North by trees on the Yale Forest at Keene, New Hampshire. These two localities are for practical purposes at the northern and southern extremes of this tree's botanical range. The complex of site factors at each locality is distinctly different and contrasting; the size of the trees reflects these differences. White pine occurs in greatest abundance on the best sites at Cooper Creek but at Keene it usually occurs on the medium to poor sites. All trees selected for measurement were second growth and the same procedure, instruments, and methods of measurement were used on each area. From the following figures, disclosed by this comparison, it is evident that growth both in diameter and height are greater at Cooper Creek than at Keene:

At 10 years of age there was a difference of about 15 feet in height in favor of the trees at Cooper Creek, while at 60 years there was a difference of about 33 feet, the pine at Cooper Creek being approximately 107 feet in height while that at Keene was approximately 74 feet. The measurements on diameter show that at 10 years of age there was a difference of about 3 inches, while at 60 years there was a difference of about 4 inches, in both cases the difference being in favor of the pine at Cooper Creek.

Our Regional Leader in the Southern Appalachian District, Mr. Pierce, informs me that no wild Ribes have as yet been reported in the white pine region of Georgia, though they are present just across the Georgia-Tennessee line in the Big Frog Mountains and along the Hiwassee River near McFarland, Tennessee, in some quantity.

SUMMARY OF BLISTER RUST CONTROL WORK IN NEW YORK, 1933.
(Extract from Annual Report, New York Conservation Department)

State Reforestation Areas

Due to the curtailment of work on the Reforestation Areas, but little initial eradication work was carried on there. However, as some of these areas had been covered several years previous and it was known that at the time a heavy Ribes population existed there, it was deemed advisable to re-work these areas covering 10 counties and in certain places to extend the protective border. In Otsego, Schoharie and Chenango Counties the work was done by personnel from the Civilian Conservation Corps Camp and through regular appropriations on the remaining areas.

A relatively high Ribes population may be noted on some of these areas which is due to having the maximum protective border extended from 900 to 1500 ft. A re-check was made on European black currants (Ribes nigrum) within the one mile zone around the reforested areas and it is hoped that this zone is now free of all such bushes.

State land - Forest Preserve

The forest preserve eradication work this year was confined wholly to the Adirondacks. Both plantations and natural stands were protected here, largely through the C.C.C camps. The ground to be covered was generally rugged and meant slow progress in order to avoid missing Ribes.

Protecting State Nurseries

The procedure of re-checking the State Nurseries was continued this year. This means maintaining a 1500 foot zone free of all Ribes and a one mile zone free of Ribes nigrum around the border of each nursery. Notwithstanding the fact that this ground is practically combed each year, a surprising number of Ribes are found each year due to natural agencies and to possible introduction of seed by birds and other sources.

Private Lands

The private land owner is still the biggest owner of white pine in the State and naturally, the greatest amount of protective work is done on these lands. Protecting these hundreds of pine stands in their infancy is a step forward in the forest protection program.

Emergency Conservation Work Camps on Blister Rust Control

This year the blister rust organization was augmented through the C.C.C camps, three of which were devoted entirely to this work. Camps were located at Davenport, in Delaware county; at Bolton Landing in Warren county and at Schroon river, in Essex county. In addition to these three, there were six other camps which contributed some of its personnel toward blister rust work. These camps were located as follows; Preston, Chenango county; Sacandaga Lake; Goldsmiths, Franklin county; Arietta, Hamilton county; Wanakena and Letchworth Park.

Most of these camps were not organized until the blister rust season was well advanced. Some time was necessarily taken in training the personnel and outlining the work. Because of this, and because in a majority of cases these young men were entirely unfamiliar with outdoor life, naturally, it took time to get adjusted to the work.

The men doing blister rust work were given as thorough a training as possible under the circumstances. They were at all times, when in the field, under the direct supervision of a trained foreman. Some of the State land that had been neglected heretofore was taken care of by these camps, and also work on a few of the State parks and municipally owned lands.

Black Currant Elimination

More incriminating evidence is being brought forth each year against the English black currant (Ribes nigrum) as an agent in spreading blister rust. During the past year detailed studies on various pine stands scattered throughout the State stamped the English black currant indelibly as being responsible for many serious infections. The total number of black currants destroyed in 1933 was 10,037.

Only one instance was noted this year where Ribes nigrum were growing wild. Last year they were found wild in several parts of the State.

Removing Blister Rust Infections

Further work in removing blister rust infections on white pine was undertaken the past year on State land. The State Reservation at Saratoga Springs has about 75 acres in white pine plantations, the majority of which is about 20 years old. There is also considerable natural white pine scattered over some 700 acres of woodland. The inspections disclosed a total of 113 diseased trees. Forty-nine of these were dead, having large trunk cankers. These trees were removed. Infected limbs were removed on 64 trees. Dead and dying trees have been removed almost every year and undoubtedly the pruning over this period has prevented many limb infections from reaching the trunks.

At Hensonville, in Greene County, a 40-acre plantation of white pine was set out on State land in 1918. Pruning operations were started in September, 1933 under the NIRA program with a force of 12 men. The lower branches were removed to about an average height of four feet thereby eliminating a majority of the branch cankers. Any other cankers appearing on the trees were removed. All brush was carted out of the plantation and burned. In the spring a check for branch infections will be made during the fruiting period. A check will also be made for any remaining Ribes within infecting distance of the plantation.

Other pruning operations are in progress at Spruceton, in Greene County, and on the Wilcox plantation in Warren County.

Placing Blister Rust Roadside Demonstrations

During the late spring a new blister rust roadside demonstration was placed at Graphite in Warren county a few miles west of the Village of Hague

on Hague Mountain. This is the first demonstration area placed in this particular neighborhood. The seven other older demonstration areas were retagged and new signs placed. This gives a total of eight demonstration areas well located in pine growing regions. It is estimated that at least a quarter million people pass these demonstrations yearly.

	Acres protected	Ribes destroyed
Blister rust control on state reforestation areas, 1933.....	26,747	393,969
Blister rust control on forest preserve areas, 1933.....	17,950	746,248
Work accomplished on State nurseries in 1933.....	9,208	22,550
Blister rust control on miscellaneous state lands, 1933	6,437	131,600
Amount of eradication completed on county lands this year.....	5,053	41,366
Blister rust work done on community and industrial forest lands.....	14,785	196,024
Blister rust control on private land, 1933.....	80,486	402,734
Blister Rust work done by C.C.C. camps.....	<u>33,536</u>	<u>1,138,832</u>
Grand total.....	194,202	3,073,323

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EDUCATIONAL WORK IN MARYLAND ON BLISTER RUST CONTROL.

H. E. Yost

Friday evening, March 9, I discussed blister rust control before a group of farmers at Piney Grove, and Saturday afternoon the same subject at Oldtown. In both cases they seemed vitally interested, and I don't believe we shall find any trouble to speak of in Eastern Allegany County next summer. On March 12 I spoke to a forestry club at Corriganville on the same subject, and I am getting in the schools as soon as it can be arranged.

The following may be of interest to other State leaders. I have adopted the idea started by Mr. Pierce in Virginia last year of keeping the higher educational institutions in the State informed of the progress of the blister rust and its control. I have written a two page circular letter which I am distributing to each of the colleges for their biology department, to the agricultural teachers in the county high schools as well as to the E.C.W. camp superintendents, county agents and members of the State Forest Service. The letter is accompanied by a copy of Miscellaneous Publication 22 "Protect White Pine from Blister Rust." I believe we owe this service to the people of the State as well as to ourselves.

RIBES ERADICATION IN VERMONT - 1933

F. H. Rose

During the 1933 season blister rust control work was carried on in the following manner: private work the same as in former years, C.C.C. work and Nira work. The season opened May 15 with private work which ended August 31. C.C.C. work was carried on from June 20 to September 15, and Nira work from September 3 to September 25. The following figures show the number of acres cleared of Ribes and the number of Ribes destroyed under the above projects:

	<u>Number of Acres Worked</u>	<u>Number of Ribes Destroyed</u>
Private work	2,910	16,669
C.C.C. work	3,585	40,460
Nira work	<u>2,240</u>	<u>10,186</u>
Total	8,735	67,315

The C.C.C. work encountered several difficulties, such as a late start, lack of transportation, the training of men, a short working day and the like, but the coming season should see most of these difficulties eliminated so I believe that we can look forward to accomplishing greater results with the C.C.C. personnel, while our Nira program should be of great value in solving our control problems.

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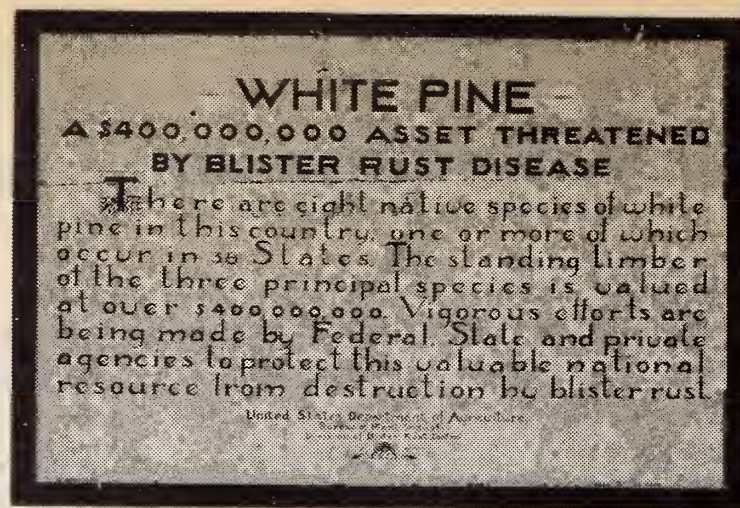
BLISTER RUST EXHIBIT PLACED AT FIELD MUSEUM IN CHICAGO

Brycie J. Bayles

The exhibit shown on the following page was recently sent to Mr. H. N. Putnam for display in the Field Museum in Chicago. Mr. Putnam, believing that a blister rust exhibit would be of value in such an institution, received permission for the display from the Museum authorities some time ago.

This exhibit may be arranged in various ways, such as the one pictured, or the two panels "White Pine" and "How Blister Rust Spreads" may be set up back to back on a table, with the riker mounts containing actual specimens painted to show aecia, uredinia and telia, together with the large canker showing pycnia and aecia, placed on the table at the bottom of the "Spread" panel; and the "Control" poster and colored map at the bottom of the "White Pine" panel.

This complete exhibit may be duplicated for use in a few other appropriate places, or parts of it may be furnished as an addition to other blister rust exhibit material.



WHITE PINE BLISTER RUST EXHIBIT

THE COLONIAL ASPECT OF THE CULTIVATION OF
EUROPEAN BLACK CURRANTS

E. M. Brockway, Massachusetts

While canvassing for European black currants during the last seven years through the various towns and cities in southeastern Massachusetts, it has been extremely interesting to note how these bushes are cultivated by groups of individuals. In other words there seems to be for the most part certain colonies of bushes. It is our feeling that these colonies start from one or two individuals who in turn introduce the black currants to their neighbors, and they in turn introduce them and give cuttings to other friends nearby. So it is that one planting in due time spreads to adjacent streets in the neighborhood, and a regular black currant group becomes firmly established.

A striking example of this condition presented itself while we were recently engaged on C.W.A. work canvassing for black currants in the city of Watertown, Massachusetts. There were 11 gardens on one particular street, and 9 of them contained black currant plants. The number at each location was as follows: 1,1,1,5,7,10,12,13,15.

There were also 4 other areas on nearby streets. On these streets it was apparent that new colonies were just starting for Area No. 1 had 3 places with bush counts of 1,2, & 3; Area No. 2 had 3 places with counts of 4,4, & 8. No. 3 Area had 5 places with counts of 1,2,2,4, & 5; and Area No. 4 with 4 places and counts of 1,2,3, & 4.

In a few more years no doubt these various areas would have closed in on each other by additional planting, and one extremely large colony would have resulted with a very large increase in a total number of plants. Black currant plants are not as productive as red currants, and as soon as an owner discovers this fact he is very likely to increase the number of bushes in his garden in order to obtain the quantity of berries needed to take care of his fancy.

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SEVEN SPECIES OF FIVE-NEEDLED PINES AT OHIO FORESTRY ARBORETUM

O. J. Dowd, Ohio

The Ohio Division of Forestry Arboretum at the Ohio Agricultural Experiment Station at Wooster, contains a fine collection of forest species. Many of the 706 species and varieties are planted in forest plots. There are 36 species and varieties of pines in the arboretum. Those engaged in white pine blister rust control will be particularly interested in the seven species of five-needled pines, Pinus strobus, P. peuce, P. flexilis, P. excelsa, P. koraiensis, P. cembra, and P. balfouriana. Mr. Edmund Secrest, State Forester, and other members of the department extend a cordial welcome to anyone who wishes to visit this arboretum.

OWNERS HELPFUL IN WAR TO SAVE PINE FORESTS

Good sportsmanship and an attitude of cooperation has been the rule, and obstruction the exception in the campaign against the gooseberry and currant bushes in places where they are deadly to white pine trees because the bushes harbor and spread the white pine blister rust. Most owners of the dangerous bushes are willing to sacrifice them when they understand the damage the bushes may do.

As an example, J. E. Riley, blister rust State leader in charge of the cooperative campaign in Connecticut, cites results of a winter survey of cultivated gooseberries and currants in 10 towns. C.W.A. workers covered the area and interviewed owners. Less than 1 in 40 of the owners refused to sacrifice their bushes, about 7 out of 8 readily agreed to the removal of the bushes, and the remaining owners were away and could not be interviewed.

Currants and gooseberries are most dangerous when they are within 900 feet of white pine timber, so the survey classified the bushes as to whether they were more or less than that distance from white pine trees.* The owners of the more distant bushes were approximately as willing to allow the removal of the bushes as the owners of those closer. "The chances are," says Mr. Riley, "that many of those who first objected will consent to the eradication of the bushes when they learn that the great majority are willing to do what promises the greater good for the greater number". (U.S.D.A. Press Release, March 4, 1934.)

* A detailed discussion of this survey was given by Mr. Riley in the January issue of the Blister Rust News. - H.T.W.

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A MAINE STUDY PLOT

W. O. Frost

The following data on a new study plot which was established last year at Bangor, Maine, may be of interest to the readers of the "News". The pines on this plot, which is one-half acre in size, averaged about six feet in height. Out of 692 trees examined for the blister rust, 249 or 36% were found to be infected, 41 of the trees being dead. Three hundred and two cankers were found, 198 of which were trunk cankers. The years in which the 302 infections took place were as follows:

<u>1923</u>	<u>1924</u>	<u>1925</u>	<u>1926</u>	<u>1927</u>	<u>1928</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>
1	11	56	78	41	48	50	15	2

Blister rust is firmly established wherever white pine grows in Maine. Infection is increasing in unprotected areas, and in old protected areas where Ribes are "coming back" young infections are being reported.

NEW YORK SECTION OF SOCIETY OF AMERICAN FORESTERS URGES
THAT FIGHT AGAINST BLISTER RUST BE CONTINUED.

(Resolution Adopted at Meeting of New York Section - Society of American Foresters - February 2, 1934.)

Whereas the protection of the forests of New York State against insects and disease is indispensable to the welfare and also to the full economic use of these forests, and

Whereas among the outstanding needs in such protection are the continuation, without let-up or interruption, of the fight to exclude the Gipsy Moth from this State, and of the campaigns against white pine blister rust and against the Dutch Elm Disease:

Now, therefore, be it resolved, that the New York Section of the Society of American Foresters urge upon the Federal and State authorities under whose authorization and/or direction this protection work is done, that the campaigns against these enemies of the forest be continued without abatement, but rather with increased energy.

H. C. Belyea
Secretary, New York Section.

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MORE THAN TWO AND A HALF MILLION RIBES DESTROYED IN PENNSYLVANIA IN 1933

According to Richard P. Fatzinger, State Leader of white pine blister rust control, more than 2,665,000 wild and cultivated currant and gooseberry bushes were destroyed in Pennsylvania last year in order to protect native Pennsylvania white pine stands from the deadly blister rust disease.

The Ribes eradication work was carried on over some 43,700 acres of land. This was the most extensive blister rust control project ever undertaken in Pennsylvania during a single year. Approximately 85 percent of all the work accomplished was done under the emergency conservation work program by members of the Civilian Conservation Corps. About 4 percent was carried on under allotments made from NIRA funds. The balance of the work, approximately 10 percent, represented eradication projects carried on under State allotments and through private cooperation.

The sanitation zones at the three State Forest nurseries at Mont Alto, Clearfield, and Greenwood, were given reeradication treatment, and the boundaries of the zones marked with blazed and painted lines.

(Data from the February 15th Service Letter of the Pennsylvania Department of Forests and Waters.)

COMPARISON OF MAN-DAYS PER ACRE SPENT BY C.C.C. WORKERS
AND REGULAR B.R.C. WORKERS IN NORTH IDAHO.

S. N. Wyckoff

It is interesting to compare the work of the Civilian Conservation Corps in north Idaho in 1933 with that performed in the regular blister rust control operations of that region in the previous year. The following table shows a comparison of the man days per acre by eradication types on the basis of equal numbers of Ribes per acre for the 1932 north Idaho blister rust control operations and the work of the Civilian Conservation Corps in 1933:

Eradication Type	Ribes per Acre	Man-days per Acre	
		1932 Operation	1933 C.C.C. Operation
Open Reproduction	472	1.22	1.52
Dense Reproduction	120	.50	.94
Open Pole	125	.40	.76
Dense Pole	57	.23	.37
Open Mature	125	.44	.57
Stream	396	1.07	2.29
Averages	229	.68	1.00

This table shows an average of 1.00 C.C.C. man-days per acre in 1933 as compared with .68 man-days by regular workers in 1932. In this comparison, the term man-day has been placed on a basis comparable with the results of the 1932 operations and means the total number of working hours spent on the job divided by eight. Under this system, other factors do not count against the work such as time devoted to other activities, or the time the men are held in camp for a variety of reasons. You will observe that there is a constant but hardly uniform increase in the number of man-days per acre spent by the Civilian Conservation Corps. However, this is, I believe, merely an expression of the youth and inexperience of the men doing the work.

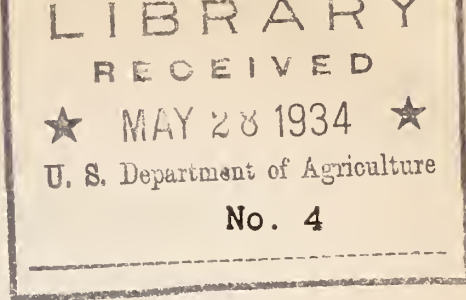
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Vol. 18

April, 1934

THE BLISTER RUST NEWS

Issued by the Division of Plant Disease Eradication and Control and the Cooperating States.

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U. S. Department of Agriculture
Bureau of Entomology
Division of Plant Disease Eradication and Control
Washington, D. C.

SURVEY CONDUCTED FOR CULTIVATED RIBES UNDER CWA PROJECT IN CONNECTICUT
J. E. Riley

The object of this survey was to locate all cultivated currant and gooseberry bushes in 25 towns as a preliminary step in the systematic eradication of all European black currants and of all other currant and gooseberry bushes within infecting distance of white pine stands. From 50 to 56 men three foremen and one draftsman all on CWA funds were employed on this project. Also one state foreman, one state assistant foreman and one federal supervisor was employed.

The survey has been completed in 35 towns and partially completed in two others. The men made 29,064 interviews, located 5,517 Ribes patches consisting of 54,983 cultivated bushes. Details as to species of Ribes, distances from pine and attitude of owners toward destruction of their bushes are tabulated below.

	Within 900 ft. pine			Over 900 ft. from Pine			Totals
	Attitude toward removal			Attitude toward remov..			
	Agrees	Refused	Undeter.	Agrees	Refused	Undeter.	
No. European black currants	534	20	273	191	18	281	1317
No. flowering currants	299	16	103	168	7	91	684
No. other currants	21825	1123	7583	8010	449	3994	42784
No. gooseberries	4631	269	1831	2272	92	1103	10198
Total all bushes	27098	1428	9790	10641	566	5469	54983
Number of Ribes patches	2896	101	803	1199	45	473	5517

Only 2.7% of the bushes surveyed were European black currants and a large proportion of these were found in one town. 70% of the bushes were located within 900 ft. of white pine. 76% of owners having Ribes within 900 ft. of pine agreed to sacrifice their bushes, 3% refused and the attitude of the other 21% could not be determined.

The objective of the survey has been attained and 10 additional towns surveyed. In order to make best use of this survey, the removal of the European black currants and of all cultivated Ribes within infecting distance of pine should be done this summer.

The attitude of the CWA men toward the work was excellent. With only a few exceptions they took a keen interest in the survey and gave intelligent and faithful service.

The national and state reemployment services made every effort to cooperate with the blister rust organization in securing men suited to the work.

PROGRESS OF BLISTER RUST CONTROL UNDER NIRA WESTERN DIVISION

C. C. Strong

General

Plans are being carefully but rapidly formulated for an early spring start on the largest blister rust control program ever undertaken in the West. If present plans are not altered materially, about 150 NIRA camps will be operated in the Inland Empire, 5 in southern Oregon and about 35 in California. The average number of men to be employed for each camp is 30. Thus work is in sight for approximately 5,700 men for the season.

A very mild winter in the West indicates that work may be started by May 1, or as soon as Ribes bushes are in leaf, weather conditions permitting. Administration of the work in 1933 showed that Ribes can be eradicated successfully well into October.

Recent Accomplishment

Since the field work was terminated last November about 25 men, in the Inland Empire and California, have been employed under the NIRA program. These men, while primarily engaged upon analysis of survey data, construction of blister rust control maps, etc., have been given training which fits them for the supervision of blister rust control work in the near future. The following is a list of the activities these men have been engaged upon.

1. Analysis of results of Ribes eradication work done in 1933.
2. Construction of permanent maps showing work done in 1933.
3. Analysis of data secured on the preeradication survey last fall in the Inland Empire and southern Oregon.
4. Construction of type, age, class, working class, ownership and burn and cutting maps for areas surveyed in 1933.
5. Completion of sugar pine inventory in California and completion of office compilations, maps, etc.
6. Compilation of checking information on all areas worked in 1933 and preparation of reports, maps, etc.

All of the above has been incorporated into permanent records for each major forest unit. As a result, the history of past work will be complete for all forest units and there will be complete information for areas not yet covered to serve as a guide to future operations.

RIBES ABUNDANCE IN DIFFERENT RIBES TYPES, LAKE STATES REGION

H. N. Putnam

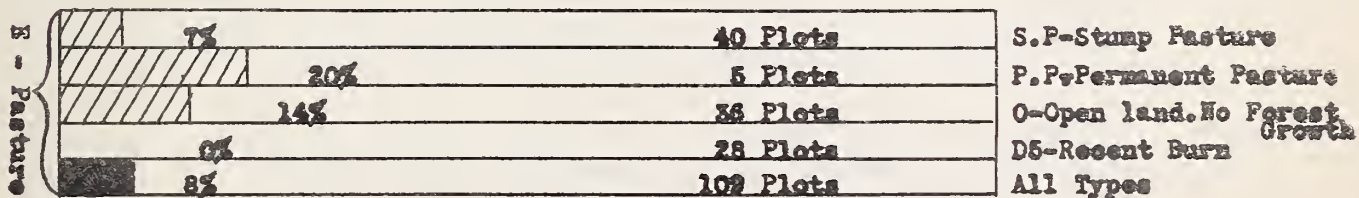
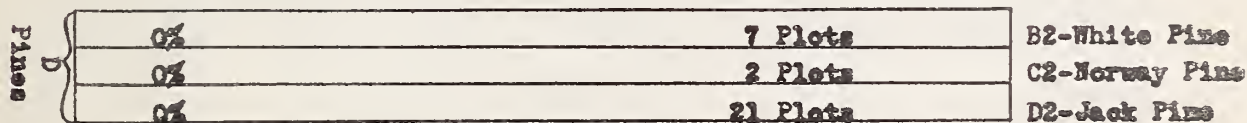
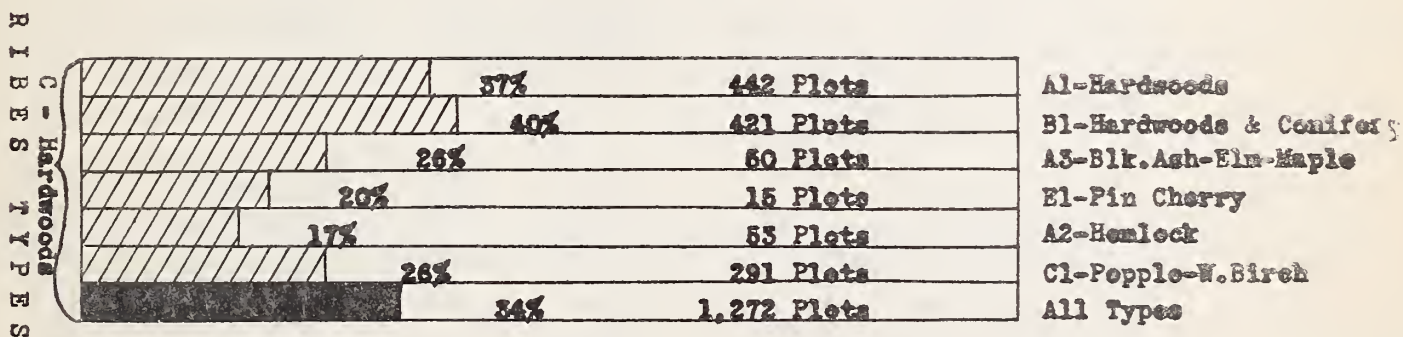
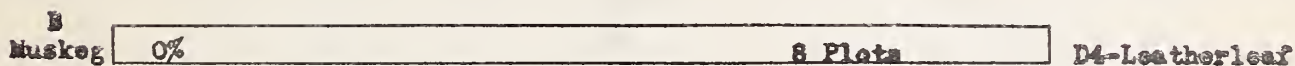
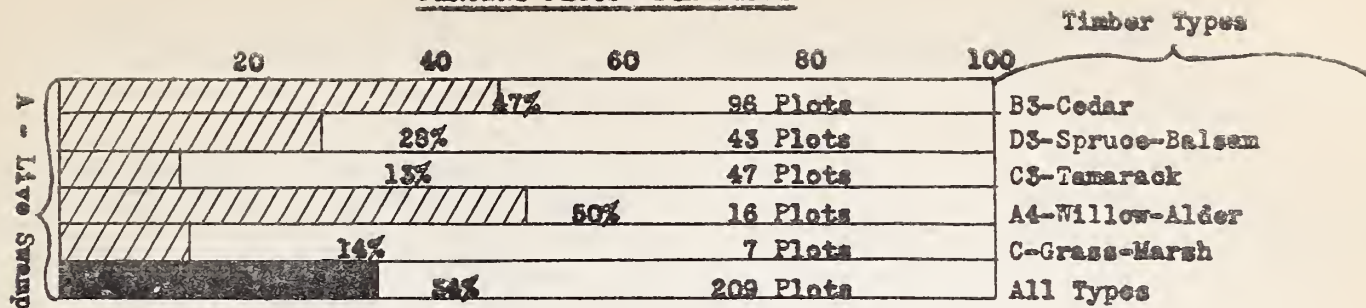
An effort has been made in the Lake States region to define conditions in which Ribes abundance and working conditions are approximately uniform. To accomplish this purpose six Ribes types are recognized. Two of these are swamp types, two are upland forest types and two are open types. These six types are as follows:

- A. Live Swamp Type. Cedar, hardwoods, tamarack, black spruce, etc. This type is characterized by water, usually flowing, deep humus, loamy soil, much brush, windfalls. Ribes are usually very abundant and their removal is a costly eradication job, requiring crew work with the men in close formation.
- B. Muskeg Swamp Type. This type is characterized by still water, deep peat, dense growth of leather leaf, muskeg moss and sometimes scattered dwarf black spruce. Ribes are usually absent except at edges.
- C. Upland Type Hardwoods. Mixed hardwoods and white pine, aspen and white birch, hemlock, etc. This is dry land, medium duff, sandy loam to clay loam, good soils, brush usually medium. Ribes are usually medium abundant in this type.
- D. Upland Type Pine. White pine, Norway pine and Jack pine. This is dry land, sand to sandy loam - light brush. Ribes are usually absent to few.
- E. Upland Type, Pasture. Scattered hardwoods or white pine. Dry land, open fields, soils vary. Ribes are few to medium often large bushes.
- F. Cultivated Type. Areas in crops or meadow not needing even scout work except along fences, stone piles, etc.

In an effort to build up a quantitative basis on the abundance of Ribes in these various types, the U. S. Forest Survey party in August and September 1932 in Langlade County, Wisconsin cooperated to the fullest extent and furnished very valuable data in connection with their strip line surveys. They ran strip lines through various timber types and determined on a per acre basis the number of trees by species and size classes. Reproduction was recorded by the number of milacres (1/1000 of an acre, an area 6.6' square) with or without such reproduction. Information on Ribes was taken on the same basis; i. e., the number of milacres with Ribes was recorded. Since each plot consisted of 10 milacres, it was a simple matter to figure out the per cent of milacres with Ribes.

In the table and graph there are shown the results of this study.

PERCENT PLOTS WITH RIBES



Percent of Plots with Ribes. Forest Survey data, Langlade County, Wisconsin. Data collected Aug.-Sept. 1932 by U.S. Forest Survey Party.

Occurrence of Ribes in Different Ribes and Timber Types

Data taken by U. S. Forest Survey, Langlade County, Wis., Aug. 1, to Sept. 30, 1932

Ribes Type	Timber Type	Number Plots		% Plots With Ribes	No. Milacres		% Mil- acres With Ribes
		Total	With Ribes		Total	With Ribes	
A - Live Swamp	B3-Cedar	96	45	47%	960	105	11%
	D3-Spruce-Balsam	43	12	28%	430	50	12%
	C3-Tamarack	47	6	13%	470	14	3%
	A4-Willow-Alder	16	8	50%	160	31	19%
	C4-Grass Marsh	7	1	14%	70	2	3%
	Sub-Totals	209	72	34%	2090	202	10%
B - Muskeg	D-4Leatherleaf	8	0	0	80	0	0
C - Hardwoods	A1-Hardwoods	442	165	37%	4420	323	7%
	A2-Hemlock	53	9	17%	530	14	3%
	A3-B1.Ash-Elm-Maple	50	13	26%	500	56	11%
	B1-Hardwoods & Conifers	421	170	40%	4210	395	9%
	C1-Popple-W.Birch	291	75	26%	2910	207	7%
	E1-Pin Cherry	15	3	20%	150	3	2%
	Sub-Totals	1272	435	34%	12720	998	8%
D - Pines	B2-W.P.	7	0	0	70	0	0
	C2-N.P.	2	0	0	20	0	0
	D2-J.P.	21	0	0	210	0	0
	Sub-Totals	30	0	0	300	0	0
E - Pasture	S.P-Stump Pasture	40	3	7%	400	4	1%
	P.P-Perm. Pasture	5	1	20%	50	1	2%
	O.Open-No Forest Growth	36	5	14%	360	8	2%
	D5-Recent Burn	28	0	0	280	0	0%
	Sub-Totals	109	9	8%	1090	13	1%
GRAND TOTALS		1628	516	32%	16280	1213	7%

Attention is directed to the quite uniform findings of Ribes abundance in the different timber types, which are considered as making up a given Ribes type. For example, in Ribes type A, Live Swamp, all of the 5 swamp timber types showed plots with Ribes varying from 13% to 50% with an average of 34% for the Ribes type as a whole.

The six hardwood timber types making up Ribes type C, Hardwoods, showed a closer similarity in Ribes occurrence, varying from 17% to 40% of the plots with Ribes with an average of 34%, the same as the average of live swamp.

An average of only 8% of the plots in the four types making up Ribes Type E, Pasture, showed Ribes.

No Ribes were found in the Ribes Type B, Muskeg; or Ribes Type D, Pines.

In addition to figuring the percent of plots with Ribes, the percent of milacres with Ribes was also computed. It may be noted that in every case the percent of milacres with Ribes is decidedly smaller than the percent of plots with Ribes. This, of course, is to be expected since a plot with one milacre with Ribes is given the same weight as a plot with ten milacres with Ribes in figuring the percentage on a plot basis.

Our past eradication job reports are being analyzed from the standpoint of the number of man days required per acre to eradicate Ribes in the different types. If a sufficient basis is available all of these data will assist us greatly in intelligently estimating the control problem direct from a timber type map, thereby greatly aiding us in making plans for future work.

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PENNSYLVANIA DESTROYS CURRANT AND GOOSEBERRY PLANTS TO PROTECT WHITE PINE

To protect the white pine timber stands of the State from their deadliest enemy the blister rust, a fungous disease, 2,665,000 wild and cultivated currant and gooseberry plants were destroyed in Pennsylvania last year, George H. Wirt, Director of the Bureau of Forest Protection, announces.

More than 43,700 acres of white pine timber were protected. This was the most extensive blister rust control project ever undertaken in Pennsylvania during a single year. The gooseberry and currant plants are destroyed because they transmit the disease to the pines, Wirt said.

About 85 percent of all the work accomplished was done under the emergency conservation work program by members of the Civilian Conservation Corps. The balance was carried on under Federal allotments made from NRA funds, from State allotments, and through the cooperation of private woodland owners. (Extract from "The National Nurseryman", March, 1934.)

EXTRACTS FROM 1933 ANNUAL REPORT FOR MASSACHUSETTS

Aeciospore Production

An exceptional abundance of aecia was noted, in Amesbury in Essex County, in an area of young infection in Middleboro in Plymouth County, and in many sections in southern Berkshire. On the other hand, many areas, notably in Southboro in Middlesex County, Pembroke in Plymouth County, and Ipswich in Essex County showed very little aecial activity.

Informational and Service Activities

Informational activities in general were materially subordinated to other more pressing duties. However, Agent Roop received very flattering cooperation from the local press in Amesbury and a very helpful interest was stimulated. Agent Roop also made good use of an infected plantation in Amesbury which he developed into a demonstration area. This area was the means of stimulating interest and conveying accurate first hand information about the disease to the local public.

Agent Doore continued his very successful contact with the local press in his district, notably in Great Barrington. He reports the acceptance and publication of 24 items consisting of 195 column inches. In the E.C.W. camps in the Franklin-Berkshire district, Agent Doore also made use of the stereomotograph to show a standard set of 25 lantern slides.

A blister rust exhibit was furnished to but one agricultural fair during 1933. Agent Wheeler staged with effect a duplicate of the "before and after" type of display used for the first time during the 1932 fair season. This exhibit was placed in the Hampden County Improvement League Building during the Eastern States Exposition and was very favorably received.

New Pine Infected Townships

Agent Hodgkins spent a few days in one or two areas in metropolitan Boston and discovered infection on pines in the town of Nahant in Essex County and in the city of Revere in Suffolk County. On December 31, 1933, therefore, the records showed that infection on white pine has been reported in 343 of the 355 cities and towns in the Commonwealth.

Local Cooperative Control Work

An effort was made to continue as far as possible the policy of securing the eradication of Ribes through the cooperation of local pine and Ribes owners. 567 pine and Ribes owners were willing to cooperate and expend the equivalent of \$2,840.44. The Massachusetts Department of Conservation and the Massachusetts Department of Correction were additional cooperators, expending \$236.30 for control work.

Initial Control Work

Initial control work was performed in only three districts; namely, Worcester, Hampden, and Berkshire. The areas covered were principally pine properties where in previous years it was questionable whether the pine would survive the competition of associated hardwoods. In all, 7,750 acres of land were examined and 23,537 wild and 48 cultivated Ribes destroyed. The wild Ribes population averaged 3 bushes per acre, and the cost of control amounted to $11\frac{1}{2}\phi$ per acre.

Reeradication Work

One outstanding case of repopulation of Ribes came to light in Amesbury where the control area showed a marked restocking to escaped red currants. This was attributed by Agent Roop to the fact that in the initial control work, a considerable number of patches of cultivated Ribes were allowed to remain just beyond the limits of the 900 ft. protection zone, and birds which seem to be unusually abundant in the locality, have apparently transported the seeds, which have given rise to the new plants. In the work in Amesbury, therefore, the records show a slightly larger number of wild Ribes found in 1933 as compared to the total number reported in 1923. This situation emphasizes the danger that may be involved by leaving too many cultivated Ribes even at distances greater than 900 ft. from white pine.

Emergency Conservation Work Administration

Approximately one-quarter of the field activities during 1933 relate in a way to cooperation in emergency conservation work at the Civilian Conservation Corps camps. Control work was performed at 10 of the C. C. C. camps in Massachusetts, there being insufficient white pine at the other state forest locations to warrant intensive crew work. Six experienced foremen were selected from the regular state personnel and appointed as checkers under this program. The work actually accomplished was well and thoroughly done.

National Industrial Recovery Administration

There were numerous unavoidable delays in actually authorizing this work to proceed, and, therefore it was not until September 7 that work in Massachusetts was under way. Field conditions were such that all work was discontinued on September 30. During this brief period of operations, part-time employment was given to 83 previously unemployed laborers for a total of $7,258\frac{1}{2}$ labor hours. A grand total expenditure of \$4,315.41 was involved. Tabulations indicate that work was performed in this emergency in seven townships. Crew work was performed on 3,320 acres of land, and 124,407 wild Ribes destroyed. The per acre cost of this work amounted to \$1.30. This higher cost of eradication is directly attributable to the large Ribes coefficient of 37 as compared with a normal of 3 Ribes per acre in regular control work. This increased figure of Ribes per acre is in turn due to the fact that easily 75% of the Ribes were skunk currants.

Black Currant Location and Eradication

In the Essex, Middlesex, Barnstable, and Worcester districts, work of canvassing properties for the purpose of locating and eliminating black currants was continued. The most complete cooperation ever, was accorded the men engaged in this activity, and very little friction was encountered. In fact only one claim for reimbursement was submitted to the department by the 552 owners who eliminated these offending bushes. The canvass in the combined areas involved inspections in 37 towns where 2,181 black currants were found in 552 locations. More than 335 owners removed their own bushes without the assistance of the field personnel.

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MAPPING NATIVE AND PLANTED WHITE PINE IN OHIO

Oscar J. Dowd.

The purpose of this survey was to locate and map all native areas of white pine and white pine plantings in Ohio. The information secured in this survey will be used to make plans for the protection of white pine against the white pine blister rust disease.

The following table shows a summary of the information obtained in mapping the native white pine on this project:-

Protection Needed in Ohio Native White Pine Areas

No. Pro. ject	Area	County	Acres White pine	Acres to Erad- icate			Man days la- bor	Crew days labor 6-man crew	Man weeks super- vision
				Crew	Scout	Total			
A	Little Mountain	Lake	133	400	400	800	204	34	7
B	" "	Geauga	130	190	300	490	98	16	3
C	Mohican	Ashland	839	1540	2022	3562	790	128	25
D	"	Knox	347	782	627	1409	397	65	13
E	"	Holmes	104	467	435	902	233	39	8
F	Vermilion	Lorain	70	670	255	925	333	56	11
G	Little Beaver	Columbiana	175	710	120	830	357	59	12
H	Walkeatomika	Licking	26	-	126	126	5	-	1
I	Faven Rocks	Belmont	45	95	117	212	48	8	2
J	White Rocks	Monroe	62	95	150	245	48	8	2
Total			1933	4949	4552	9501	2523	413	84

It will be noted that 9,501 acres of land were mapped in the survey of the native white pine areas and that this contained 1,933 acres of good stands of white pine. It should be explained that the 900-foot strip of protective zone around good stands of white pine is mapped for the purpose of determining the Ribes intensity and the brush density. It is necessary to remove all currants and gooseberries in this zone as well as those found in the pine itself.

In addition to mapping the white pine native areas, 81 white pine plantings in 30 different counties were visited and similar information was obtained. Twenty of these plantings are considered worthy of blister rust control work because of the size of the planting and the number of trees per acre. A summary of the location of these plantings by counties is given in the following table:-

Location of White Pine Plantings Visited on State CWA Project #41.

County	Number of Plantings			County	Number of plantings		
	BRC Project	Eliminated	Total		BRC Project	Eliminated	Total
Belmont	1	-	1	Lawrence	-	1	1
Carroll	2	2	4	Licking	-	1	1
Clermont	-	2	2	Lorain	1	-	1
Columbiana	-	1	1	Monroe	-	1	1
Coshocton	1	6	7	Morgan	-	3	3
Cuyahoga	2	-	2	Muskingum	-	5	5
Fairfield	1	-	1	Pike	1	-	1
Gallia	1	-	1	Portage	-	1	1
Geauga	1	-	1	Ross	1	-	1
Guernsey	-	1	1	Scioto	-	2	2
Harrison	-	1	1	Stark	-	3	3
Highland	1	-	1	Summit	4	11	15
Jackson	1	4	5	Tuscarawas	1	14	15
Knox	1	-	1	Wayne	-	2	2
Total	12	17	29	Total	8	44	52
Grand total					20	61	81

A summary of the acres of white pine in the 20 white pine plantings considered worthy of blister rust control, the number of acres to be worked and the man days estimated to work the plantings is given in the following table:

Acres of White Pine	Acres to be Worked	Man Days to Work
121	3,427	116

Four technical men were hired from the local National Reemployment Office under the rules and regulations of the Civil Works Administration. Three of these men had previous experience in mapping white pine, and in blister rust control work. The State leader of blister rust control supervised the work and mapped several plantings under the general supervision of the State Forester and Lake States Supervisor of blister rust control.

WHITE PINE SEED PLANTED IN PENNSYLVANIA

One bushel of white pine cones yields about one pound of seed. There are 26,000 white pine seeds to the pound, from which about 12,000 one-year seedlings can be expected.

High quality seed of this tree is sown at the rate of six ounces to 100 square feet of nursery bed. At one year of age there are usually about 50 seedlings to a square foot of bed surface.

At the end of the coming spring planting season there will have been 30 million white pine trees planted in Pennsylvania that were grown in the State Forest nurseries. (Extract from Service Letter, Pa. Department of Forests & Waters, April 5, 1934.

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AECIOSPORE PRODUCTION STARTED IN THE WEST.

E. L. Joy

On March 10, during a trip to the Crystal Creek infection area near Fernwood, Idaho, aecia-producing cankers were found. Due to the fact that a few blisters showed broken peridia, it is reasonable to assume that some of these were visible during the last few days in February. However, March 10 is the earliest known date of aeciospore production in the Inland Empire.

Ribes leaf development was likewise found to be unusually advanced. Almost all buds are swollen and many are broken with a few leaf tips showing beyond the bud. Throughout the area an occasional fully developed but frost-injured leaf was found.

Aeciospore production will be heavy this year due mainly to the very large number of 1930 origin cankers that will fruit for the first or second time. From this abundance of aeciospores coming one to two months earlier than normal during a very wet spring, there should result a very heavy infection of the Ribes. I can readily conceive of teliospore production and pine infection as early as the latter part of April. A continuation of favorable weather during the summer months would, therefore, result in unprecedented intensification of the rust.

If, on the other hand, we have a hot, dry period through May and June, it is probable that the early rust development would be of no great significance in so far as the infection of pines is concerned. In like manner, another cold May and June period similar to that of 1933 would probably prevent unusually heavy infection of Ribes and spread to pines.

RIBES ERADICATION AND PREERADICATION SURVEY WORK IN MICHIGAN DURING 1933
E. C. Mandenberg

A summary of the Ribes eradication work during the year 1933, also data on the preeradication survey work that was carried on after the field season ended early in October is given in the following tables:-

Preeradication Survey

	<u>Pine to be Protected</u>	<u>Acres to be Worked</u>	<u>Estimated Man Days</u>
Michigan ECW work	42,898.5	123,645.4	28,553.5
Nira work	9,835	31,703	10,565
State "	2,519	7,639	3,578
ECW "	<u>4,347</u>	<u>11,739</u>	<u>4,075</u>
Total	59,599.5	174,726	47,171.5

Wild Ribes Eradication Work

<u>Acres Pine Protected</u>	<u>Acres Crew Worked</u>	<u>Ribes Bushes Pulled</u>
20,537	49,438	3,527,768

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SCOUTING FOR WHITE PINE BLISTER RUST INFECTION IN RHODE ISLAND JANUARY 14 to MARCH 2, 1934.
L. W. Hodgkins

The object of this scouting work was to determine if white pine blister rust is spreading in the State and if so to what extent. The information obtained by the survey will also be used in planning future control work.

Mr. A. C. White was assigned to assist on this project, and a state car was provided for transportation. The work was planned so that practically the entire white pine area of the state was extensively scouted in order to determine general conditions. Intensive scouting was also conducted in those sections (likely Ribes sites) where the possibilities of finding infection were greatest.

The rust was found on white pines in 15 new locations in nine towns. The diseased pines included all stages of infection, from incipient cankers of 1931 origin to a 1918 stem canker which had killed the top of a 30-year old tree. A total of 28 infected trees were recorded and the age of the oldest infection on each tree determined. The location of each pine infection was designated on a U.S.G.S. map and notes recorded as to the owner, source of information, likely Ribes sites, and need for control work.

In addition to scouting for infection, on native pines, an examination was made of 13 plantations established in 1929 and 1930 and 37 primary infections of 1926-1929 origin were located. A summary of the result of this work follows:

SUMMARY OF WHITE PINE BLISTER RUST INFECTION SURVEY DURING JANUARY 1934 IN PLANTATIONS ESTABLISHED DURING 1929 AND 1930.

Town	Number Centers	Number Infected Pine	Number Cankers	Year of Infection Determined by Age of Wood
Lincoln	2	9	9	8-1928 1-1927
Pawtucket	1	2	2	1928 - 1 tree dead
Barrington	1	1	1	1928
Providence	0	0	0	-
Warwick	0	0	0	-
So. Kingston	2	7	7	3-1928 4-1929
No. Kingston	1	6	6	5-1928 1-1926
Richmond	1	5	5	3-1928 2-1927
Foster	1	3	3	1928
Coventry	1	1	1	1929
Gloicester	1	3	3	1929
Totals	11	37	37	1-1926 3-1927 26-1928 7-1929

BLISTER RUST ACTIVITIES IN VIRGINIA

Roy G. Pierce

Mr. Clyde Stevens delivered a talk on blister rust control before the C.C.C. boys at Camp 74 in Virginia on March 13. Several of the mountain schools were visited in the vicinity of Camp 74, short talks delivered and 4-page leaflets distributed. In the preeradication survey in the vicinity of the Shenandoah National Park 1980 acres of pine land were covered this month (March) by Mr. Stevens.

Mr. Ward H. Robens has just reported from the Sugar Grove Camp in the Pisgah National Forest that he started control work in the New River working circle during the week ending April 7. The Ribes leaves were just opening at this place which is in extreme southern Virginia.

NOTES ON WHITE PINE SHELTERBELTS IN IOWA

H. N. Putnam

Under the direction of D. R. Lubberts, Iowa State Leader, an intensive and systematic survey of white pine and coniferous shelterbelts has been conducted by ten two-man CWA crews since early December. All coniferous shelterbelts were located on township plats, 2 inches to the mile. White pine shelterbelts - those containing eight or more white pine trees - were distinguished from other coniferous shelterbelts on the maps. Data were taken at each white pine shelterbelt as to number, age, condition of white pines and other trees; number of Ribes, wild and cultivated (R. nigrum noted separately); estimated man days to work, and owner's attitude.

Mr. Lubberts had assembled all of this material on maps and permanent record sheets so completely that the data simply begged to be played with.

On March 1 shelterbelt census work was completed in thirteen counties, located in the northern portion of the State. In these counties nearly 10,000 coniferous shelterbelts had been located, of which approximately 1533 or 15% contained 8 or more white pine trees per shelterbelt. The data on the 1533 white pine shelterbelts were analyzed as to (1 occurrence of Ribes, and (2) attitude of owner. These data are shown in Tables No. 1 and No. 2.

Table No. 1

White Pine Shelterbelts in Certain Counties in Iowa Classified
According to Ribes Conditions

Portion of State	County	Number W.P. Shelter- belts	Per cent White Pine Shelterbelts with Ribes Conditions			
			Absent	Wild Ribes only	Cultivated Ribes only	Wild and Cultivated Ribes
N.E.	Black Hawk	240	50%	5%	45%	Neg.
N.E.	Bremer	134	67%	2%	29%	2%
N.E.	Butler	200	67%	6%	27%	0%
N.E.	Floyd	226	33%	27%	27%	13%
N.E.	Mitchell	209	34%	20%	40%	6%
North	Franklin	175	48%	10%	38%	4%
North	Hancock	83	40%	2%	46%	12%
North	Palo Alto	18	61%	5%	17%	17%
North	Winnebago	57	44%	19%	37%	0%
North	Worth	99	100%	0%	0%	0%
North	Wright	34	50%	9%	38%	3%
N.W.	O'Brien	27	30%	11%	55%	4%
N.W.	Cherokee	31	32%	26%	42%	0%
Totals		1533	51%	11%	34%	4%

From Table No. 1 the following points are evident:

- (1) Within 900 feet of more than half of the white pine shelterbelts neither wild nor cultivated Ribes were found.
- (2) That the Ribes eradication problem around these shelterbelts is not great is evidenced by the fact that wild Ribes were found around only 15% and cultivated Ribes around 38% of the shelterbelts.
- (3) No great differences in Ribes abundance is discernible between the northeast, the north and northwest portions of the State.
- (4) In Worth County no Ribes at all were found around the 99 white pine shelterbelts.

That the cultivated black currant is very scarce, at least in northern Iowa is indicated by the fact that in the 1533 white pine shelterbelts only three locations with a total of 20 bushes of cultivated black currants were found.

In only six cases were cultivated Ribes found on property other than that belonging to the shelterbelt owner and within 900 feet of the white pine shelterbelt. I believe in each of these six cases the neighbor indicated his willingness to remove his cultivated Ribes to protect his neighbor's white pine shelterbelt. This is quite a hopeful sign. For the most part the protection of a white pine shelterbelt will be a problem only for the owner and not for his neighbor to settle.

In Table No. 2 the attitude of the white pine shelterbelt owners has been classified.

Table No. 2

White Pine Shelterbelts in 13 Counties of Iowa Classified as to
Attitude of Owners Towards Blister Rust Control

Item	Number Shelter- belts	Percent Owners Which Were			
		Favorable	In- different	Not Decided	Not Favorable
With and without Cult. Ribes	842	81%	7%	7%	5%
With Cultivated Ribes	422	79%	4%	11%	6%

From Table No. 2 it is evident that the great majority of white pine shelterbelt owners value their white pine shelterbelts and are desirous of having them protected against blister rust. It is significant to note that the attitude of those shelterbelt owners who have cultivated Ribes is quite similar to that of all white pine shelterbelt owners with or without cultivated Ribes. In other words, the valuation of cultivated Ribes by the majority

of white pine shelterbelt owners is not high. Many of the shelterbelt owners who declared themselves as unfavorable to control work had only a few white pine and good cultivated Ribes bushes and preferred to keep their currants and take a chance on losing their white pines.

All in all the control problem in Iowa is a relatively simple one. One value of the shelterbelt census work is the focusing of attention and consideration to all shelterbelts, thereby bringing home to the owner a great appreciation of the value of a shelterbelt in a prairie state like Iowa.

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A TIMBER TRAGEDY

(Extract from Service Letter, Department of Forests
and Waters, Harrisburg, Pa. March 15, 1934.

Blister Rust Damage To Northern White Pine at Waterford, Vt., is an interesting account of one of the worst blister rust infected white pine stands in the country, written by E. C. Filler, Senior Pathologist of the Division of Blister Rust Control, United States Department of Agriculture. The pamphlet is a reprint from The Journal of Agricultural Research.

The studies for this publication were begun in 1924. The source of spread of the rust in the locality was white pine planting stock imported from Germany in 1901 and 1909. The spread of the disease was aided by the establishment of a currant garden near by in 1909, in addition to the wild Ribes growing in the pine stand.

The oldest cankers present were in 1908 wood. In 1930, 39 percent of all white pine in the area was infected with blister rust. In the merchantable stand, because of large crowns and greater height, 76 percent of the trees were infected.

In 1930 the loss in value in the merchantable stand caused by blister rust amounted to \$19.86 per acre, calculated on a stumpage value of \$8.00 per thousand board feet. The maximum loss when all of the diseased white pine in the stand are dead will be between \$112.16 and \$139.18 per acre.

The subject is very thoroughly covered and definitely shows that what has happened on this pine lot can happen any place where pine and Ribes are associated.

Richard M. May.

- 70 -
COOPERATION IN MICHIGAN

E. C. Mandenberg

I am quoting a portion of a letter received from one of our CWA workers in Lake County:

"Was told about an old homestead in Dover township where there used to be black currants. Claimed to have been set out 50 years ago. The place is not on a road, or rather the road is grown full of second growth poplar and we will have to walk a mile to get to it."

That is real cooperation.

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EDUCATIONAL WORK IN MARYLAND

H. E. Yost

During the month of March there was carried on in western Maryland a series of talks on the blister rust and its control before a number of organizations. The following will indicate the places visited and the number present.

County	Date	Name of Town Visited	Number Present	Name of Organization
Allegany	March 9	Piney Grove	80	Little Orleans Farmers Club*
"	" 10	Oldtown	18	Farmers Club
"	" 12	Corriganville	30	Grammar School 4-H Forestry Club.
"	" 13	Oldtown	32	High School before Vocational Agricultural Students.
"	" 14	Flint Stone	30	" " "
Garrett	" 20	Friendsville	35	" " "
"	" 21	Oakland	50	" " "
"	" 22	Accident	35	" " "
"	" 23	Grantsville	36	" " "

*This was given in connection with a talk on potato diseases by a member of the Maryland Experiment Station.

Lantern slides were used at all places except at Oldtown Farmers Club. At many places there was some discussion of the work. Considerable interest was shown in Allegany County where there were formerly fine stands of white pine and where it is now coming back under protection from fire. Since I had quite a supply of Circular #40 on the blister rust a copy of this publication was given to each of the students and to the farmers, together with a small 4-page leaflet.

Nine new locations of black currants were given me by the students. It is planned to address five additional high schools the latter part of April.

MIXED FOREST PLANTING

The reforestation committee of the Allegheny Section of the Society of American Foresters has found the following mixtures of species to be promising:

Scotch pine and locust, and red oak and locust are good for temporary use where the locust can be taken out early for posts.

Red pine and white pine for medium to good sites, red pine and Scotch or pitch pine on poorer sites.

Spruce and white pine on moist sites. Larch and white or red pine on good sites.

Pitch pine and spruce on sites with some clay in the soil and fairly well supplied with moisture.

White pine, yellow poplar, and larch on fertile soils.

Scotch pine or larch and red oak on fair to medium soils.

Walnut and white ash on best sites.

White ash and red oak, or red oak and yellow poplar on good soils, such as coves and lower north slopes.

Sugar maple and red oak on cool sites with good drainage.

Scotch pine and white pine to protect the latter trees from weevil-ing and to insure quality lumber.

Red pine and Norway spruce have grown well in northern New Jersey for Christmas trees. Cool and fairly moist sites are desirable.

In southern New Jersey on shady soils pitch pine and loblolly pine, short-leaf pine and loblolly pine, and pitch pine and short-leaf pine have grown well in competition with sprouts of undesirable hardwood trees and shrubs. (Extract from the Service Letter, Department of Forests & Waters, Harrisburg, Pa. March 8, 1934)

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WHITE PINE USED FOR WINDBREAKS IN WISCONSIN

Extension Forester F.B. Trenk of the University of Wisconsin conducted 41 windbreak schools during the past year from which resulted about 1,500 plantings. He recommended a windbreak of three rows, eight feet apart, the trees set six feet apart in the row so that they might later be thinned to 12 feet apart. He recommended spruce for the two outside rows, with white pine in the middle row. To be effective, a windbreak should be 75 to 100 feet from the object of protection, to permit space between for snowdrifts. (Data from "American Nurseryman," February 15, 1934.

EXPERIMENT CONDUCTED ON WHITE PINE PLANTING ON TAMA INDIAN RESERVATION, IOWA
H. N. Putnam

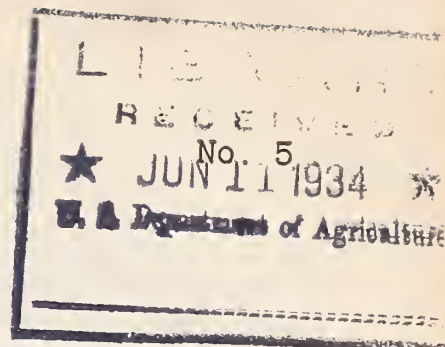
While in the field. I witnessed the beginning of a very interesting experiment on the white pine planting on the Tama Indian Reservation in Iowa. All of the white pines had been pruned by a saw in such a manner as to leave two to four inches of the branch extending out from the trunk. In a year the plan is to come back and knock off these stubs which will be dead at that time. This is a new method to me but the forester stated that it was a system used in European practices and had the advantage that no injury to the trunk is brought about in this manner. I am wondering, however, if the cambium will be able to grow over the holes left after the stubs are knocked off. I will be much interested in seeing how this experiment works out.

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May, 1934



THE BLISTER RUST NEWS

Issued by the Division of Plant Disease Eradication
and the Cooperating States.

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U. S. Department of Agriculture
Bureau of Entomology
Division of Plant Disease Eradication
Washington, D. C.

BLISTER RUST CONTROL WORK IN WISCONSIN DURING 1933.

T. F. Kouba

The 1933 Ribes eradication season in Wisconsin proved to be the most successful season since the inception of the work in 1919. This was due largely to increased funds made available for unemployment purposes. Since nearly all expenditures were for labor, Ribes eradication work was and continues to be an ideal project for the use of such funds.

Due to a tendency which follows the trend of the times to shorten working hours and increase the rate of pay on all unemployment relief projects the blister rust project increased the pay of workers accordingly and shortened the working hours. Therefore, the cost per acre for Ribes eradication during 1933 was higher than the cost of such work done previously. Including control work accomplished during 1933, initial white pine protection has been afforded approximately only eight percent of the white pine acreage in Wisconsin. In view of this fact it is evident that the job has hardly begun. To protect the remaining ninety-two percent before serious injury occurs is the problem which confronts the white pine owners of the State.

A summary of the Ribes eradication work performed in Wisconsin during 1933 is shown in the following table. It is classified according to five major divisions, namely, Private Cooperation, U. S. Indian Service (E.C.W.), U. S. Forest Service (E.C.W.), State E.C.W. and National Recovery Act work.

Local Control

Agency	Acres White Pine Protected	Acres Worked	Number Ribes Destroyed	Cost per Acre	Cost per Bush	Ribes per Acre	Man-days Labor per Acre
Private Cooperation	981	4,157	361,766	0.68	.8¢	87	.29
U. S. Indian Service E.C.W.	7,859	15,447	1,573,991	0.82	.8¢	102	.27
U.S. Forest Service E.C.W.	1,681*	2,342	206,508	1.11	1.3¢	88	.55
State E. C. W.	11,990	36,109	1,237,518	0.64	1.8¢	34	.19
National Recovery Act	504	525	642,579	8.24	.7¢	1,224	1.98
Total	23,015	58,580	4,008,047	0.77	1.2¢	69	.25

*Includes 1,536 acres of white pine planting sites.

Nursery Sanitation

Agency	Acres White Pine Pro- tected	Acres Worked	Number Ribes Destroyed	Cost Per Acre	Cost Per Bush	Ribes Per Acre	Man-Days Labor Per acre
U. S. Forest Service	-	250	322	0.31	24.5¢	1	.11
State E. C.W.	-	467	105,339	4.79	2.1¢	225	1.45
Total N. S.	-	717	105,661	3.23	2.2	147	.98

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A STUDY IN THE CONTROL OF WHITE PINE BLISTER RUST
CONDUCTED IN NEW YORK

Ray R. Hirt

A study in the control of white pine blister rust has been conducted on the Charles Lathrop Pack Demonstration Forest at Warrensburg, New York for the past several years. Different species of five-needled pines have been used in the work and these were placed in permanent plantations. As a result there are now established on the forest, plantations of the following five-needled pines: Pinus strobus, Pinus flexilis, Pinus monticola, Pinus excelsa, Pinus parviflora, Pinus strobiformis, Pinus lambertiana, Pinus peuce, Pinus cembra, Pinus koraiensis, and Pinus aristata.

These pines are being studied from both the standpoint of their relative susceptibility to blister rust and their adaptability to eastern growing conditions. The New York State College of Forestry invites any one interested in the plantations to visit the Pack Demonstration Forest at Warrensburg, New York.

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ODDMENTS

Did anyone ever ask you to visualize for them an area of a million acres of land? I recall E. J. McNerney, formerly blister rust control agent and now with the Transit Inspection Service, quizzing me on this point, and his comment to the effect that Worcester County, Massachusetts has an area of a million acres, - 1,001,614.3 to be exact.

C.C.P.

PORCUPINES - ANOTHER ENEMY OF WHITE PINE TREES.

Urban Nelsom, Minn.

During the past winter the blister rust agents have been actively engaged in mapping white pine areas and carrying on a preeradication survey in general throughout the northern Minnesota counties. Their work has taken them to the more remote and unsettled portions of the State where plant and animal life have been hampered but very little in recent years. It was noted that the porcupine exists in comparatively large numbers and continues to do a great deal of damage in these isolated portions of the State.

In one township in northern Cook County there were hundreds of small plots, $\frac{1}{4}$ acre or more, where the porcupines had girdled from fifty to seventy-five percent of the coniferous trees. The majority of these trees will die outright and a few will take on a scraggly appearance and continue to exist. From any elevated view point these rodent killed trees can be seen very readily and comprise a good percentage of the timber

In the porcupine's choice of food it seems to rate white pine among the first. In a mixed stand of Norway, white and jack pine, the white pine is usually the first tree to be girdled and freed of its protective inner layer of bark. However, in many instances there seems no choice in trees and the clumsy animal will climb from one tree to another apparently showing no preference. Where tree growth is light, the animal will often resort to feeding on birch, cherry, and even alder bush. Their palatable foods include white pine, Jack pine, Norway pine, tamarack, spruce, and balsam; their preference being in the order given. In areas where the tamarack reproduction is heavy a single porcupine will girdle hundreds of young trees in a very short season.

It is very fortunate that their existence is not dependent on coniferous foods throughout the entire year. During the summer and fall seasons their food consists chiefly of succulent herbaceous plants. It does a certain amount of damage to unoccupied cabins, tools and mining equipment. It is modernistic in some of its tastes and will gnaw rubber hose and eat the insulation off rubber-covered wire:

The porcupine's range is very limited and will confine its winter travels to an eighth of a mile, but in most cases to several rods. It lives a filthy life, resting and seeking shelter in rocks and crevices, under logs and windfalls, and seems to make no effort to keep its waste-filled abode in a sanitary condition. It is not a sociable beast and for the most part it lives a solitary life. Otherwise when in association with its own kind, it is incessantly quarreling.

At the present time the animal has no important enemies. Naturalists report the Fisher as being very destructive of porcupines. This animal, however, has been extensively trapped and is today a rare species.

In many of the northeastern states bounties have been paid for the destruction of this animal. In the western states active campaigns have been made against it. In this region occasional efforts have been made to reduce local concentrations.

During the past winter blister rust agents, while making a preeradication survey of the Grand Portage State Forest, killed about 60 porcupines, thus working towards the control of another enemy of the white pine.

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HEADLINES

C. C. Perry

The ability to write effective headlines has always been considered a valuable accomplishment in the newspaper service. We have gone a long way from the former scare-heads such as "War on Pine Rust Begins" and "Pines Doomed by Rust" "White Pine Forests in danger of Extinction" etc. and we find instead some more rational titles such as the following ten which have been gleaned at random from headings which our Agents were favored or cursed with by reporters during 1933.

"Tells How Pines Can be Saved"

"Cause and Effect of Blister Rust"

"Pines Show Signs of Spring"

"Mud Time Approaches"

"Gives Rotarians Facts in Blister Rust Control"

"Blister Rust Cankers Tell Story"

"Blister Rust Control Locally"

"Blister Rust Can Be Controlled"

"CCC Men Tackle Blister Rust Control Work"

"30 Now Employed on CWA Blister Rust Control Work"

I expect that there may be a sincere difference of opinion as to the effectiveness of these particular "heads" but they at least have little sensational element about them.

BLISTER RUST CONTROL IN THE SOUTHERN APPALACHIAN DISTRICT IN 1933.

Roy G. Pierce

White pine is an important tree in the Southern Appalachian States, the best estimate for the region of the area having 5 percent or more of this species, being 1,065,075 acres distributed as follows:

Georgia.....	143,000 acres	South Carolina.....	4,075 acres
Kentucky.....	18,000 "	Tennessee.....	236,000 "
Maryland.....	25,000 "	Virginia.....	233,000 "
North Carolina.....	256,000 "	West Virginia.....	150,000 "

Ribes are present in white pine areas of this District, in great abundance in the three northern States of Maryland, Virginia and West Virginia but in lesser quantity as one proceeds toward the south. The predominant species are the prickly-berried gooseberry (R. cynosbati) and the roundleaf gooseberry (R. rotundifolium). Skunk currants (R. glandulosum) have been found in abundance in Maryland, and as scattered growth in southern Virginia, while the wild black currants have so far proven quite rare, though present in Maryland, Virginia and West Virginia. Occasional cultivated red currants are found escaped.

The following table shows the areas covered in each state in the district, excluding nurseries.

State	Total Area Worked in acres)				No. of Ribes Bushes removed
	Private	State	Federal	Total	
Georgia	739	0	8,112	8,851	0
Maryland	1,550	340	0	1,890	187,470
North Carolina	0	0	29,570	29,570	360
South "	463	0	425	888	0
Tennessee	0	0	10,720	10,720	62,830
Virginia	6,929	0	17,734	24,663*	262,043
West Virginia	3,230	420	606	4,256	60,748
Totals	12,911	760	67,167	80,838	573,451

*An additional 3,637 acres were partially worked in Virginia, 45 bushes being removed, but additional work is needed to complete eradication.

Control work, consisting of eradication of Ribes near valuable pine stands, was not carried on previous to 1933 except in the National forests in Virginia and West Virginia. In 1933 owing to the presence of Emergency Conservation Work Camps it was possible to carry out control work on six National forests in the region, 2 National parks, 2

state forests in West Virginia and on several thousand acres of private land in Virginia and West Virginia. In addition some work was carried on in Maryland, Virginia and West Virginia, with regular funds and in Maryland with NRA funds.

In addition to the above, a reconnaissance survey during the dormant season was carried on in Maryland, Virginia and West Virginia, the following areas being covered in this survey:

Maryland - - - - 17,790 acres
Virginia - - - - 54,790 "
West Virginia - 1,100

Total - - - - 73,680 "

The rust is present in Maryland, Virginia and West Virginia, but has caused little damage as far as known. In 1933 an area of 81,693 acres were completely worked, 577,430 Ribes bushes being destroyed. An additional area of 77,317 acres were partially completed. Serious damage to white pine has only occurred to our knowledge on one area of an acre and a half in Augusta County, Virginia.

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TREE DAMAGE BY SNOW AND ICE

A study of snow and ice damage to trees shows that the species studied are subject to damage in the following order, from the greatest to the least; Scotch pine, white pine, European larch, western yellow pine, red pine, Norway spruce, northern white cedar.

Scotch pine has been abandoned in reforesting areas in zones where snow damage is liable to occur. It has been discovered that snow and ice damage occur chiefly when the temperature is within the narrow range of six or seven degrees round freezing point.

The extent of damage depends on the species as well as density of stand and age of the trees. Coniferous species suffer more than hardwoods because they retain their leaves during the winter and offer a larger surface for accumulation of snow. (Extract from "National Nurseryman, April, 1934.)

NOBODY LIKES THEM!?

E. M. Brockway

One of our most recent amusing incidents in connection with our CWA black currant canvass in Metropolitan Boston was the receipt of a return card from an owner in Everett notifying us that he had destroyed the European black currants on his property. He added the following comment "Nobody liked them anyway!" Unfortunately, the opinion is not unanimous.

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CONTROL WORK IN DISTRICT NO. 6, NEW YORK

N. H. Harpp

The classification of white pine has been carried on to quite some extent here in Warren and Washington Counties this winter with our woodland type mapping program. Several blister rust foremen were employed on this work during the fall and early winter, in addition to what was done by the agents. Four blister rust foremen started the map job again in Warren County on April 1 and will continue on such work until the eradication season starts.

The prospects for a banner year in connection with our eradication work here looks good. We have been allotted about 120 men from C.C.C. Camp No. 61 located near Bolton Landing for use on private property. The distance from the camp that we are allowed to work these men is limited to a 15 mile radius. Within this 15 mile zone of the camp there are approximately 20,000 acres of good type pine which we hope to get protected during this season with the C.C.C. help.

Outside of the 15 mile zone mentioned, the plans are to keep about 10 other State blister rust foremen busy on the cooperative work and as conditions appear now this can be accomplished.

It is certainly true that conditions are improving in this region as well as in a great many others but we still have a large number of men who are unemployed and this fact in some cases may be a help to us in securing cooperation. To be sure, if a pine owner is not otherwise profitably employed, it is easier to get him to assist with the eradication job.

Several strip line infection study areas are being established here in Warren County at this time to determine the effectiveness of the eradication work that has been carried on.

BLISTER RUST CONTROL WORK PLANNED FOR RHODE ISLAND EMERGENCY
CONSERVATION CAMPS DURING SUMMER OF 1934

Harry R. Lewis, Commissioner

(Extract from Rhode Island State Department of Agriculture Weekly
Bulletin, May 7, 1934)

Many 1934 work plans have been prepared by Associate Forester, A.W. Hurford and his staff supervising emergency conservation work. These plans have been approved by the United States Forest Service and various projects are under way. The work planned for the present enrollment period which runs from April 1 to September 30, 1934 is as follows: The planting of 51 acres in a state park and 160 acres in state forests; mapping 379 acres to record forest types. It is estimated that 30,000 acres will be scouted to eliminate currant and gooseberry bushes, alternate host plants of white pine blister rust and a reconnaissance will be made to detect the presence and prevalence of forest insects and diseases in different places over an area of 180,000 acres. With reference to the above mentioned planting projects it is interesting to note that 102,000 white pine and 5,000 hemlock trees are now being planted in the two state forests.

The protection of our natural resources affords fields of activity which allow fine training and much inspiration for youth as well as giving many public benefits through the work.

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SKUNK CURRANTS REMOVED FROM LOT WHERE PINE IS TO BE PLANTED IN GREAT
BARRINGTON, MASSACHUSETTS

G. Stanley Doore

A former foreman of mine now attached to a C.C.C. camp at Great Barrington, Beartown State Forest, started cleaning up a patch of skunk currants on April 24 in a slash lot not previously protected where white pine will shortly be planted.

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NEW GOOSEBERRY FOUND IN CUMBERLANDS
IN TENNESSEE

Mr. Roy G. Pierce who is supervising blister rust control work in the Southern Appalachian States writes on May 12 as follows: "On our first day in the field Wednesday (May 9) we found a new gooseberry in the Cumberlands in Tennessee, Ribes curvatum running 3000 to the acre, but only one white pine nearby. These bushes were growing at 1650 ft. elevation."

STATE LEADERS APPOINTED IN NORTH CAROLINA, SOUTH CAROLINA
AND GEORGIA

Agnes T. Shields, Wash.D.C.

State Leaders have recently been appointed in North Carolina, South Carolina and Georgia to supervise the blister rust control work in those states. Mr. John A. Ferree was appointed State Leader in North Carolina, his appointment being effective April 23 with headquarters at Asheville, North Carolina. During the summer of 1933 Mr. Ferree was employed as Field Supervisor by the U. S. Department of Agriculture, Bureau of Plant Quarantine.

Mr. J. H. Dean was appointed State Leader in South Carolina on April 27, with headquarters at Clemson College, South Carolina. Mr. Dean received the B.S. degree from Clemson College in May, 1932.

Mr. Wm. V. Zimmer, Jr. is the new leader in Georgia, his appointment being effective May 2. He is headquartered at Milledgeville, Georgia. For the past four months he has been employed on sand-fly and mosquito pest control work by the U.S. Department of Agriculture.

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PHENOLOGICAL DATA

New Hampshire

Agent Boomer reports that aecia were found breaking through on April 24 for the first time this year in two different towns in Carroll County, also that skunk currants were breaking their leaf buds April 18 and Ribes cynosbati April 24. These bushes were in a favorable position.

New York

Agent Harpp reports a blister rust infection that had started to fruit in the town of Chester, Warren County on April 24. This is the earliest record of such that we have in that district.

Minnesota

Agent L. B. Ritter, writes on May 10 as follows: In the vicinity of St. Paul spring did not begin until April 27th. Several warm summer days started everything growing. The season, a week slow in starting, is now a week ahead of schedule. We are greatly in need of rain. High winds have kept a great deal of the State up in the air mingled with portions of North and South Dakota and other nearby states.

"Ribes were sufficiently in leaf by May 1 to begin eradication. The first Ribes cynosbati blossoming was observed May 3. The first breaking of aecial blisters (spring spores) was observed May 4."

BLISTER RUST CONTROL WORK IN GRAND PORTAGE STATE FOREST, MINNESOTA
E. B. Dahl.

During the period February 10th to March 30th, preeradication survey work for blister rust control was carried on in the Grand Portage State Forest. A total of 3,893 acres of white pine, $\frac{1}{4}$ stocking or more, were mapped. Young pine, 20-35 years old, makes up 1,813 acres of the above total and will be protected from blister rust this coming summer. It is estimated that 1,620 man days of labor will be required to secure its protection. The work was done by Blister Rust Agents U.C. Nelson, Louis Hope, Joe Mockford, and E.B. Dahl. Camp was established in a summer resort cabin at McFarland Lake.

The Grand Portage State Forest is located in northeastern Cook County. The forest is bounded on the south by Lake Superior, extending north to the Canadian boundary, west to the Superior National Forest, and east to the Pigeon River Indian Reservation, thus, making up the northeastern tip of the State, except that portion within the Indian Reservation.

The topography of the Forest, especially the northern half, is very rough. The hills rise gradually from the south and southwest and drop off abruptly in the form of 100-200 foot cliffs on the north and northeast. Some of the best timber in the State is found in this area. In addition to several thousand acres of virgin white pine, there are many uncut swamps containing well-stocked stands of spruce and cedar. There have been very few fires in the area, which accounts for a good stand of timber over practically the entire forest.

The winter in this part of the State was quite severe, the temperature dropping to 56 degrees below zero, and a total snowfall of 148 inches recorded at the Pigeon River Bridge. The snow, after drifting and settling, averaged between three and four feet in depth. With this amount of snow on the ground, it is quite evident that snowshoes were an essential part of our equipment.

The seven weeks spent at McFarland Lake were thoroughly enjoyed by all of us and we are grateful for the help and cooperation received from Ranger P. J. Bayle of Grand Marais and Supt. Chas. Godfrey of ECW Camp #62-S.

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FORMER BLISTER RUST WORKERS
Roy G. Pierce

In a trip through the South I met Prof. Geo. M. Armstrong, State Plant Pathologist of Clemson College, South Carolina. In talking over the proposed blister rust control work in the State it was found that Prof. Armstrong was once engaged in this work himself in Wisconsin under Walter Snell. This was probably before 1920 so it would seem Mr. Armstrong is an old timer in the blister rust control work.

In Georgia I learned that there was a former Massachusetts blister rust man, Mr. C.H. Alden of Cornelia living there.

BLISTER RUST CONTROL ACTIVITIES IN NEW YORK
H.G. Strait

Now that spring is an assured thing, a reality and not a myth, we can again begin to think in terms of Ribes and other eradication work. There is no question about the seriousness of the winter. Just how it is to affect the crop of aecia is not one for me to answer. However, a check on fruiting shows that there is plenty of it just under the skin, so to speak. The first open blisters that were discovered in this section were found on April 23 by Fred Sievers in the town of Saugerties, Ulster County. On the next day in Prattsville, Green County plenty of aecia was just breaking through.

A general observation of white pine in the lower Hudson Valley indicates considerable winter damage to foliage. Also considerable sun scalding is showing up on the bark on the southern and eastern parts of young pines.

Dirt roads are just getting in condition to travel without danger of sinking in up to the running board of the car. The frost raised cain with all main roads but they have settled back in a surprisingly good conditions.

Notwithstanding the bad winter we were able to do mapping work in the field a good portion of the time. We have a wonderful record of white pine in the towns covered by the classification and enlarged road block mapping system. It is felt that regardless of the amount of help available either through ECW or other State or Federal agencies, efficient work can be outlined through this system. An interesting feature which we have added to the mapping is to have the person doing the mapping give his estimate of the time necessary to eradicate the road block using a full crew of six men and putting a four hundred foot border in hardwoods and a nine hundred foot border in openings around all pine according to his classifications. As a result of this work the following full crew days are needed to clean up the Ribes as mapped this winter:

Green County.....	447	crew	days
Columbia County.....	1603	"	"

Assuming that there are about 70 working days in the field during the blister rust eradication season, it becomes evident that there is work outlined for about 30 crews or 180 men. These estimates are made on a basis of trained crews hence if we undertake the above work with inexperienced men working less than eight hours in the field, much more time will be consumed or else more men will be required to accomplish the same amount of work.

INTERESTING FOREST FACTS

By George S. Perry, Senior Research Forester,
Pennsylvania Forest Research Institute,
Mont Alto, Pa.

(Extract from "Forest Leaves", October, 1933)

Anyone has noticed in the forest that certain trees are commonly associated. White pine and hemlock; hemlock and yellow birch; beech and sugar maple; red oak, white ash and cucumber; pitch pine, rock oak, and scarlet oak; white oak, hickory, and black oak; river birch, silver maple, and sycamore; are examples. If we imitate nature our chances for success are excellent, but when we take some silvicultural short cut we invite calamity. Along with the various forest types are found certain shrubs and herbs that rarely occur where other trees predominate. Such typical plants, as well as the trees which may be found on an area, if they grow thriftily, are splendid indicators of what intensive forestry can or cannot profitably grow there. For example: red oak is the only tree of all the oaks suitable to grow on white pine soils.

Hon. S. B. Elliott knew well and often cited the hemlock as a tree that was very sensitive to changes about it. In fact, he predicted the extinction of this important Pennsylvania tree so far as intensive managed forestry is concerned. Mr. Elliott advised clear cutting this tree and replacing it with something that would lend itself better to forestry treatment, evidently having white and red pines in mind, with Norway spruce as a possible substitute.

The drought years, 1930 and 1932, had serious lessons for forestry, and it is doubtful if all these are being appreciated. In several south central counties of Pennsylvania the losses of hemlock, white pine, and other conifers, directly or indirectly because of drought, were so heavy as to be a greater local disaster than was the chestnut bark disease.

Certain forest plantations also suffered. In cases where the loss was complete or nearly so, it is evident that the site was too dry for the trees in question, but where occasionally a considerable part of the trees died, while others lived in a thrifty state, investigation showed that practically every dead tree had its roots deformed in planting. Experiments on both scrub oak lands and old fields show two-year-old stock better than three for Scotch and white pines, while three-year seedlings of red pine are superior to older transplants so far as establishment is concerned.

White pine blister rust is an example of alternation of hosts, where we attack the pest at the weak link in its chain of development - the currant and gooseberry. People often marvel at the complex life history of this tree disease, yet it is not so unusual. Man has an example in malaria where the disease alternates in the anopheles mosquito. Wheat rust goes to the common barberry and back. Apple scab is transmitted by the red juniper.

CWA CANKER ELIMINATION IN MASSACHUSETTS

R. E. Wheeler

About the first of December, 1933, canker elimination was started on Water Works lands in the towns of Blandford, Montgomery, Westfield, and West Springfield, Massachusetts. Throughout the duration of the project about 50 CWA workers were employed including 8 foremen.

The most important and largest area was in Blandford on the watershed of the Springfield Water Works. The crews for Blandford consisted of 10 laborers from Springfield and 10 from Blandford with four foremen. The entire outfit with the exception of two foremen were without previous blister rust experience. The majority of the Springfield men had never been in the woods before, while the men from Blandford were experienced woodsmen.

Care was taken to pick the right men for the different jobs. The woodsmen took care of the axe work, the keenest were assigned to inspect the pines to detect cankers and others hauled out the trees to be burned.

As a whole, the men took a keen interest in the work and were able to distinguish blister rust with rapidity and accuracy. In the entire district, approximately 675,000 trees were examined, 9,969 stem cankered trees were removed and burned, and 13,074 branch cankers were cut out. The age of the infections found ranged from 3 to 18 years.

Consistent zero weather with plenty of snow prevailed throughout the winter with the coldest day being 34° below zero and the average working day was generally at the zero mark. With the coldest winter on record in several decades, the men with scarcely an exception, showed great fortitude and perseverance. They willingly performed their work under the most trying conditions. This attitude of the men, their spirit of willingness and cooperation, was very conspicuous and noteworthy. They had a job and were happy that they had work and an opportunity to earn real money, instead of taking alms offered by the local welfare authorities. There were no casualties of a serious nature although there were several cases of frost bites.

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WORK ACCOMPLISHED ON WHITE PINE BLISTER RUST CONTROL BY THE RHODE ISLAND CCC UP TO FEBRUARY 28, 1934.

A.W. Hurford

Rhode Island's valuable white pine is being protected from its most dangerous disease through white pine blister rust control. Currant and gooseberry bushes have been eradicated on 4,996 acres, also a mapping project has been carried on to locate and obtain information on white pine and currant and gooseberry sites on 20,668 acres. (Extract from "Forty-Third Annual Program for the Observance of Arbor Day in the Schools of Rhode Island," May 11, 1934)

BLISTER RUST FOUND ON PINE NEAR GRANTSVILLE, MARYLAND

An examination of sections cut from the discolored area at the node of a specimen of pine sent in by Mr. H.E. Yost, Maryland State Leader, shows the mycelium of the blister rust fungus in the bark and cambium and also to a slight extent in the wood. This infection was discovered on Crab Run about 1½ miles north of Grantsville, Md. in the direction of Niverton, Pa.

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OFFICE COMMENT

REGISTRATION OF OFFICIAL MAIL

F.H. Spencer, Business Manager.

The Post Office Department has called the attention of this Department to the necessity of determining just what official mail is of such a character as to require registration. There is no disposition on the part of the Post Office Department to curtail the privilege of free registration, but in fairness to that Department it is felt that mail should not be registered unless it is of such a class as to clearly make this protection necessary. It is suggested that material originating in this Department which would require registration shall fall within the three following classes:

1. Communications where record of receipt is essential or desirable. Example: Notices of date to begin work on contracts; notices or renewal of leases.

2. Material which in the hands of unauthorized persons might be used prejudicially to the Government or the public. Examples: Transportation requests; Civil Service examination papers. This should not be extended to remote possibility of misuse, as disbursing officer's checks.

3. Material of considerable value or material of some value the replacement of which, if lost, would be impossible, difficult, or laborious. Examples: Only existing copies of manuscripts; only existing copies of manuscript charts or tabulations. But replaceable material of less than considerable value should not ordinarily be registered.

If cases arise involving matter which you desire registered but which does not come within any of these classes, I should be glad to consult with you regarding individual cases.

Some confusion apparently exists as to the extension of free registration service to the field. So far as the Department is concerned only representatives temporarily absent from Washington and whose official mail is entitled to free registration at Washington may claim this privilege.

April 11, 1934.

VALUE OF LOCAL NEWSPAPER PUBLICITY IN MASSACHUSETTS

G. S. Doore

We have been favored in this district with excellent cooperation from the local press and the local public responds remarkably. Just to cite a few instances in the 1933 field season.

One estate cooperated in reeradication work and hired local unemployed for the work. In addition, one man was hired and worked four weeks cutting out 750 infected trees and 900 branch cankers, and pruned several acres of young pine in an additional effort to prevent possible future infection.

Another estate, a former cooperator, hired one man, a Naval Reserve aviator, temporarily out of work. This was an unusual case in that the owner directed his employee to look me up, learn about the rust and to follow my directions for two weeks.

As a direct result of the appearance of a local item titled "Pine Blister Locally" under date of May 4, a third estate asked for supervision in marking infected trees for removal. Infection was abundant and meant a week's work for one man clearing out and burning the diseased trees.

While interviewing owners to stimulate an interest in reeradication, it is quite common indeed to have them mention articles which they have read in the local papers. Our foremen also very often report that cooperators have shown them clippings that owners have had sufficient interest to clip and save.

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PUBLICATIONS

Friesner, R.C. & Potzger, J.E. - Climax Conditions and Ecological Status of Pinus Strobus, Taxus canadensis and Tsuga Canadensis in the Pine Hills Region of Indiana. Butler Univ. Bot. Stud. 3:65-83. illus. Ap. 1934. no. 2/5. Montgomery & Parke Counties, Ind.

Perry, C.C. - "Manual for Field Men," Blister Rust Control, Massachusetts, 4th Revised Reprint, January 1, 1934.

June, 1934

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U. S. Department of Agriculture

Issued by the Division of Plant Disease Eradication
and the Cooperating States

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U. S. Department of Agriculture
Bureau of Entomology
Division of Plant Disease Eradication
Washington, D. C.

BLISTER RUST CONTROL IN DISTRICT 9, NEW YORK

Charles B. Kresge

From November 1, 1933 to March 28, 1934 the Agent was engaged in type map work mostly in Tompkins and Cortland Counties. Because of his absence from headquarters, no educational work was carried on in the district during the winter months.

The type map work, which consisted in mapping all wooded areas and white pine stands on the scale of the U.S.G.S. maps is familiar to most of the blister rust personnel. Although the work was hindered by drifted road conditions, at the same time it was accelerated by access to aerial photographs at District Forester J. D. Kennedy's office at Cortland. These photographs which are available for most of Cortland County and plainly show topographic features are made on a scale of four inches to the mile. Wooded areas were transferred from the photographs to the U.S. G.S. field maps by the use of a pantograph. Pine areas were then marked on these maps wherever they occurred in the field.

In this work all of Cortland County and about half of Tompkins County was completed. In addition to natural pine areas, all white pine plantations of any size were located. When the town prints are made from these maps they will be extremely valuable in future eradication work in these counties.

The blister rust control season in District 9 opened on May 8 with the assignment of two foremen to towns in Jefferson County under the regular cooperative program. An additional foreman, who will also be assigned work in Jefferson County is expected by June 1.

As in the past, control work in the district is being conducted in a systematic manner by townships. A foreman is assigned a township in which to protect the pine stands and to do the Ribes nigrum elimination. Thus we protect the pine stands, both plantation and natural, and at the same time, by the removal of the cultivated English Black currant (the growth of which is prohibited by State law) eliminate a great source of infection to present and future stands of white pine.

Under the regular cooperative program, initial eradication is completed in St. Lawrence County with the exception of a few pine stands on which cooperation could not be secured and those plantations which were established after the townships had been covered. Reeradication will be necessary on many of the St. Lawrence County pine areas by 1935, especially those areas that were initially protected previous to 1931. It is expected that the initial work in Jefferson County will be completed this summer. In six of the southern townships of the county little or no work has been done. In addition, there are pine areas to protect in five other townships and Ribes nigrum elimination to finish in two townships and all of the city of Watertown with a population of about 32,000.

Under the ECW program, eradication of Ribes is progressing from two C.C. camps located in St. Lawrence County.

On May 8, work began at the camp located on the State ranger school property near Wanakena, continuing the task started in 1933. At the present time there are 33 men in the field under the direction of Foreman William Signor and John Gobber. In addition to about 500 acres to be eradicated to protect older plantings, approximately 100,000 white pine established this spring must be protected. The type of ground to be covered, which consists of second growth hardwoods together with conifers such as spruce, balsam, etc. with many swampy areas containing large patches of skunk currants, makes progress rather slow. Nevertheless we hope to finish most of the eradication work this season.

From the recently established camp near Brasher Falls the training of blister rust crews began on May 14 under the direction of Foreman George A. Cook. Although the camp has less than half of its full enrollment at the present time, 27 men are at work eradicating Ribes to protect white pine which will be planted in the fall of 1934 and the spring of 1935. Approximately 9,000 acres will be covered from this camp. With the assignment of several State foremen in the near future to assist Foreman Cook, we hope to cover a large part of the work this season.

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REPORT OF RIBES REERADICATION PROJECTS FOR MONTH OF MAY
IN RHODE ISLAND
A. W. Hurford

The results of the first month's Ribes reeradication projects indicate that a good start has been made this season on this work in Rhode Island, considering the number of men employed and the local conditions.

During May 60 members of the Civilian Conservation Corps working out of two camps under the supervision of four foremen, scouted 6,600 acres of white pine land in Glocester and West Greenwich. Fourteen thousand and forty-four Ribes were found and destroyed in these townships. A NIRA crew of 12 men under one foreman scouted 950 acres in the Town of Coventry and found and destroyed 6,178 Ribes. Through both projects 20,222 Ribes were found and destroyed and 7,550 acres of white pine land were protected from blister rust. These pine areas were originally scouted in the early years of the control work, 1917-1921.

The results on EWC and NIRA Ribes reeradication for both acreage scouted and Ribes destroyed are encouraging for the first month of work, considering that many new men had to be trained and that certain adjustments had to be made. The crews are benefiting from the winter mapping project which was carried on to locate white pine and Ribes sites. The foremen being familiar with the areas to be worked know how and where to assign men in scouting each block, according to the known locations of swamps, high lands, stone walls, cellar holes, etc. In addition, the work is benefiting through the EWC camp experience gained over a period of several months. None of the 1933 camp problems remain. Although the work day is short, the crews should do very effective work this year.

NEWS ITEMS FROM TENNESSEE

W. E. Duggan,

The period May 21 to May 26, 1934 consisted of scouting pine areas in Blount, Bledsoe and Morgan Counties in East Tennessee. Our regular procedure was followed in that each agent worked with the fire warden who was familiar with pine locations in his district. Careful scouting was done on pine areas (10 acres or more in forest) which justified protection. A.H. Moss, Agent, located Ribes cynosbati at an elevation varying between 1400 and 1500 feet at the fork of Brush and Roaring Creek in Bledsoe County within 1000 feet of pines. He also located Ribes vulgare (red currant) and Ribes grossularia growing in cultivation in gardens. Jones and Stegall, Agents, also located Ribes grossularia growing in cultivation in Blount and Morgan Counties. We have observed the right conditions for the blister rust in the case of cultivated gooseberries, but apparently the spores have not reached this section yet. Eradication thus far has been done by the agent and his assistant and will be given in detail in the following report. Other diseases or infections on white pines are now being checked by Dr. G.M. Bentley, State Entomologist and Pathologist.

During the week of May 28 to June 2 Ribes curvatum was found by A.H. Moss in an area which was unreported. Sample plots are to be made the week of June 4 to 9 to determine the approximate number of Ribes per acre. We observed annual pine growth of 3 feet and 6 inches. The specimens of Ribes curvatum grow to be 5 and 6 feet in height. No infection of the blister rust has been observed yet.

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BLISTER RUST CONTROL WORK IN DISTRICT #11, NEW YORK

H.J. McCasland

In spite of the intense cold and more than the usual amount of snow during the past winter, mapping work was carried on in district #11 until the beginning of the eradication season this spring. Three towns were mapped in southern Washington County, one in Rensselaer and two in Albany County. Over 3,000 acres of white pine, chiefly reproduction from five to fifteen years old was found in the town of Coeymans, Albany County, which is a rather large pine acreage for a town in this section of the State.

Due to the late spring, eradication was not started as early as usual, however by the middle of May the season's work was well under way, two foremen being employed in Albany County, one in Rensselaer and one in Washington County.

Special effort will be made to protect the pine areas in Albany County this season, the damage from blister rust being greater in this section than in any other part of the district. This is a limesone region and gooseberries are abundant. Infection was found on gooseberries near Warner's Lake, south of Albany June first.

WESTERN MASSACHUSETTS OPENS SEASON ON RIBES MAY 16.

G.S. Doore

Active eradication of Ribes started May 16 in Berkshire County with a full schedule and fine weather during the first week. Fifty-nine men including foremen were in the field on the sixth day following the opening.

Four regular NIRA foremen are assisting private cooperators. Two of these men are operating crews on the North Adams watershed protecting 80 acres of plantations together with additional areas of natural pine. A third foreman is assigned with a small crew to the Crane estate in Dalton where 200 acres of planted stock is being reexamined. The fourth foreman or scout is assisting the smaller or farmer type of cooperator in New Marlboro. Provision is being made for a fifth foreman on this latter type of work.

Cooperation with the ECW is continuing from the points where work closed last season. At Great Barrington, two crews from the Bear-town Forest are protecting pine planted this spring. At the Savoy Mountain Camp in Savoy two crews are laboring in and about new plantations and will continue on into the older plantations a little later. Two crews of 7 men each are working out recent plantations in the town of Becket in the October Mountain Forest. Plans have been made for starting three crews each in the Erving and Sandisfield state forests on June 1.

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A WHITE PINE MONUMENT IN MICHIGAN

J. K. Kroeber

Back in 1904, when most Upper Peninsula people scarcely gave conservation a thought, and certainly were not practicing it, a hard-boiled mining superintendent had the foresight to suppress forest fires whenever they occurred in or near his community. In those early days forest fires were an every-day occurrence. Evidence of this is still noticeable on the thousands of fire swept, barren acres in the county. Around this village the lumbermen had left a few white pines which became seed trees. Whenever a fire threatened, the mining superintendent called his miners from underground to put it out. Soon a dense growth of white pine reproduction appeared and continuous vigilance preserved it. The mining superintendent has since passed on, but a 500 acre stand of beautiful young white pine, watched over by a few stag-headed parents, stands as a living monument to a true conservationist. Today it stands out as a green jewel against a barren background.

When blister rust control work was begun in the Upper Peninsula, the mining company was among the first to cooperate. Again the miners were called out to protect this pine from a new menace. It was protected in 1930 and will soon be reworked.

Today this stand is assured continued protection from fire and disease by its owners. It will remain a living monument to its early protector.

BRIEFS FROM NORTHERN NEW HAMPSHIRE

Thomas L. Kane

Blister rust control work has been underway in my district from the first week in May. The crews are made up from local labor and the young men from the C.C.C camps. The men from the C.C.C camp at Pierce Bridge are doing control work on the Government Experimental tract at Gale River. Work was started here for the first time last summer but did not progress very fast. This year the men have taken hold in earnest and under a very reliable foreman are making good headway. This tract comprises a large plantation of white pine with a mixture of white spruce. The men from the C.C.C camp in Warren are working on private lands in the adjoining town of Wentworth. Local labor is holding forth in Haverhill, Thornton and Compton.

While assisting the State Foreman in planting pine in Piermont, I uncovered an area of infected white pine that closely resembled the stand at the height of land on the old Kay lot in Lisbon. Most of the older members of the organization remember the trips to the Kay lot and will recall the extreme damage to the young stand on the top of the hill. This lot in Piermont has a very high percentage of infection. The area has been eradicated but it did not show up so badly at the time we eradicated. I looked over my B.R. 1's of the project and found that over 90% of the bushes taken from the area were skunk currants. While I only gave the area a slight examination, I failed to locate a restocking of Ribes.

In my opinion there was a greater abundance of fruiting this season than in any year that I have been on the work. It seemed to show up everywhere and was a little earlier than usual.

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CWA CANCKER ELIMINATION STIMULATES PRIVATE COOPERATION
IN MASSACHUSETTS

G.S. Doore

During the winter months a cancker elimination project under the CWA was completed in an 80 acre plantation owned by the City of North Adams. The area, better known as the Town Forest, protects the Bassett reservoir near Mt. Greylock, the highest point of land in Massachusetts. Of the ninety odd thousand trees examined 1,023 were removed because of trunk cankers and 396 trees were saved by the removal of infected branches. No doubt many additional branch cankers would have been found, but for the fact that considerable pruning of the lower branches has been in progress for some years as a scheduled part of a regular forestry program. However, the elimination of cankers was highly approved by the governing board and stimulated interest in control methods to the extent that \$450.00 was set aside for forestry work this spring, with the stipulation that the whole amount be expended on Ribes eradication if necessary.

At the time of writing two crews have combed one-half the necessary area to reprotect the plantations, the initial eradication of Ribes having taken place in 1928.

REPORT ON FIELD TRIP TO ALLEGHENY NATIONAL FOREST
PENNSYLVANIA - APRIL 29 to MAY 8, 1934
K.K.Stimson

The purpose of this visit to the Allegheny National Forest was to assist the Forest Service officials in planning and organizing the blister rust control work and in training the C.C.C personnel assigned to the project. At the request of Acting Supervisor Salmond, I also made a general inspection of the 1933 control areas at the Kelley Pines and Sandstone Springs camp grounds, and the area worked in 1932 on the Hazelwood Oil Company Tract at Henrys Mills to determine the need for reeradication.

A careful examination was made of these three control areas on May 1. As a result, I concluded that reeradication could be postponed in all three tracts for at least another year. Very little Ribes regrowth was found on the Hazelwood Oil Company area even in sites where hundreds of large Ribes rotundifolium had been eradicated in the initial work during 1932. However, numerous 1930 and 1931 branch infections were noted on the young pines in the old field in the north end of the tract where but two or three such infections could be located when Hodgkins and I made a preeradication survey of the area in 1931. It is evident that the initial control work on this area in 1932 was very timely.

Scattered missed Ribes were found on the Kelly Pines camp ground area, which was initially cleared of Ribes in 1932 by a crew supervised by Ranger Varney. This area should be reworked in 1935.

On the Sandstone Spring camp ground area, I found only a few small missed bushes. Apparently, the crew did an effective job in 1933.

The Hunter tracts near Endeavor and the Hoffman area in the vicinity of Ludlow will be initially cleared of Ribes this year. Accompanied by the respective ECW foremen assigned to supervise the work on each area, Ranger Carr and I made a general survey of these tracts on May 2 primarily to determine the bounds, pine and Ribes condition. Cultural foreman W.C. Curnutt has been assigned to supervise the work on the Hunter Tracts with 15 CCC men from Camp No. 2 at Kellettville. This area probably contains the most extensive growth of white pine on the present Allegheny National Forest area. It is estimated that there are nearly 800,000 board feet of merchantable pine on the tract. There is also quite a large area of excellent white pine reproduction and a white pine planting (approximately 18 years old) covering several acres. Fortunately, the Ribes growth over most of the area is relatively light, and the control problem will not be difficult. Because of this fact, the crew from the Kellettville camp was taken to the Hoffman area, near Ludlow, for training on May 3. The Ribes are especially abundant on the latter tract. Approximately 1,000 acres will be covered in connection with work on the Hunter Tracts.

The work on the Hoffman area, near Ludlow will be performed by 15 men from CCC Camp No. 7 at Kane under the direction of truck trail foreman Fred Pechter. This is a new recreational development on the forest and contains several acres of white pines of special scenic importance.

The Ribes (rotundifolium and glandulosum) are especially abundant in the southeast portions and generally distributed over the remaining sections. It will be necessary to cover three or four hundred acres to adequately protect the pine.

During the period May 3 to 8 the two crews were trained in eradication methods and the bounds of the control areas were traversed with the foremen in charge of the respective projects. It will be necessary to use the strip method in working all of the areas. The crews were divided into two units with a section foreman in charge of the second unit.

My observations while in the field indicate that the disease is just getting established in this section of Pennsylvania. In addition to the pine infections located on the Hazelwood Oil Company tract, I found scattered 1930 and 1931 branch infections on both the Hunter and Hoffman areas. With the heavy Ribes population that apparently exists over most of this section of the state, pine infection will be extremely intensive once the disease has become established. All areas containing pine of sufficient value to justify control work should be given protection as soon as possible.

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WHITE PINE BLISTER RUST CONTROL IN TENNESSEE

W.E. Duggan, State Leader

This project started in Eastern Tennessee May 7, 1934 where the natural range of white pine occurs between elevations of 1100 to 1600 ft.

As our scouting progressed ideal conditions were observed for the blister rust as Ribes grossularia and Ribes curvatum were found growing directly beneath large stands. W. Robb, a Civilian Conservation Corps camp superintendent, first observed Ribes curvatum in Tennessee. It had not been reported beyond Stone Mountain, Georgia. Morgan Springs in Baledsoe County has a prolific growth of Ribes curvatum and eradication is almost impossible because of high cliffs and steep topography.

The scouting of our three agents has shown that white pine in this section occurs in coves along creek beds. Very few trees grow on ridge tops because of the dryness and exposure to heat conditions.

During the month of May, 5,681 acres of pine were scouted for Ribes and the three species observed were: Ribes grossularia, Ribes cynosbati and Ribes curvatum with 92 plants being destroyed. The most abundant of these three species is Ribes curvatum.

Growth conditions of white pine have been observed in cooperation with the state forestry department. The largest annual growth observed to date was 4 feet 10½ inches. Ideal pine sites are plentiful and a few virgin white pine areas are still present although Trametes pini is prevalent in these mature trees. Crew eradication on a 400 acre tract is in our working program for the month of June.

ERADICATION SEASON STARTED IN DISTRICT #13, N.Y.

H. Holcomb

During the past fall and winter, woodland type mapping was carried out in Delaware County, also a small amount of enlarged detail mapping. With maps available much valuable information is at hand and it is hoped that a successful season will result.

The eradication work for the season of 1934 was slow in getting under motion due to the Ribes leaf condition and lack of labor. However, on May 2nd two State foremen were assigned to the reeradication work at the Horseheads State Nursery and on May 14 they started work at the Painted Post Nursery. It's the same old story, Ribes are still being found. However, the number found at the Painted Post Nursery was less than last year. At the Horseheads Nursery the number of Ribes was about the same, but they were somewhat different in size.

On May 18, a State foreman was assigned to a township in the northern part of the County, to work on private areas. It is hoped to have two more going by the 10th of June.

The C.C.C crews were delayed in starting on blister rust, due to tree planting, but on June 1st 106 strong they started eradication work on State reforestation areas. It was a blistering hot day, but they performed like veterans. Approximately 4,000 acres will be covered with these crews during the season.

In looking over white pine plantations this spring, I have observed that the fruiting cankers were very noticeable. Due to the cold spring the fruiting bodies were late in coming out, but were very large in many cases with an abundance of spores.

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CONTROL WORK AT WINCHENDON, MASSACHUSETTS

Wm. Clave

The NIRA and CWA made possible the mapping of approximately 13,000 acres of the control area in the town of Winchendon during the past winter. The resulting maps show clearly and accurately the location of the pine areas in relation to the natural Ribes sites such as runs, swales swamps and stone walls. With these maps as a guide we have been able to plan the eradication work for this season more intelligently.

The principal wild Ribes found in this town are skunk currants (Ribes glandulosum) and gooseberries (Ribes hirtellum). They grow in abundance although confined quite definitely to moist sites.

A 13-man eradication crew started work in Winchendon on May 15. The town will be worked by blocks, and those containing the greatest amount of young pine will receive first consideration.

RIBES CURVATUM DISCOVERED IN TENNESSEE

Roy G. Pierce

Owing to the activities of a former blister rust employee and the work of the new agents in Tennessee a new species of *Ribes* has been discovered in Tennessee - the granite gooseberry - *Ribes curvatum*. This species has not been known north of the Gulf states and Georgia as a native plant. The writer has recently studied the species at Stone Mt. about 15 miles east of Atlanta and has been acquainted with it through specimens in the National Herbarium in Washington and through collections made on cultivated bushes at Highlands, N. Carolina in 1933.

Mr. W. Robb, former blister rust employee in New Hampshire, now Superintendent of the Bledsoe C.C. camp in Tennessee, ran across some wild gooseberries a short while ago, and called attention of the State Forester, Mr. Jas. O. Hazard to their presence in the Bledsoe State Forest in Bledsoe County. The new blister rust agents and the writer visited the area on Wednesday, May 9 and had a good work out eradicating the gooseberries on a small area. The area on which they were growing on Glade Creek was about 1650 feet elevation, much lower than that of the normal range of *R. cynosbati* in the State. This fact coupled with the discovery by Pete Stegall of the gooseberry in flower which resembled the Stone Mt. gooseberry collected less than a week earlier convinced the writer that the species was *Ribes curvatum*.

Corroboration of the identification was given by one of the botanists at the University of Tennessee.

In the area worked, the bushes averaged about 3250 per acre. They were of all sizes from seedlings to bushes 4 feet in height. On Glade Creek they were growing among hardwoods and yellow pines, in bottom land as well as extending up the slopes. They are distinguished from other Eastern species by their smooth shiny red bark and short red curved thorns.

The following brief description may aid others in identifying the bushes. The leaves are generally under 25 mm. in width, though seen up to 40 mm. on fast growth; rounded or truncate at base, though occasionally heart shaped at base and are slightly tomentose along veins. Thorns appear in threes at the nodes and are from 4 to 7 mm. in length; prickles are reddish brown somewhat profuse on new growth, but gradually disappearing so that wood one year old and older is generally lacking in prickles. Bark shiny red on one year old wood turning to dark red brown and silvery gray on older wood; latter sloughs off in strips an inch or more in length. Flowers white with petals 5 to 7 mm. long. Species probably gets its name from the slightly recurved thorns.

At present only one location is known for this species in Tennessee, but undoubtedly it is present at other locations in the Cumberlandlands. Wild gooseberries have been reported growing close to white pines at 1000 feet elevation in the Cumberlandlands and it is likely that some of these bushes are the same as found on Glade Creek, that is the granite gooseberry *Ribes curvatum*.

ECW - NIRA BLISTER RUST WORKERS START CONTROL WORK IN RHODE ISLAND.

A.W. Hurford

The annual Ribes eradication program in Rhode Island started the first of May when field conditions allowed 60 Civilian Conservation Corps men and 12 NIRA employees to renew this State's control work. Under the direction of State Leader, A.W. Hurford, and State Agent A.C. White, four ECW and one NIRA foremen took charge of the projects. Thirty enrolled men from ECW Camp S-52 are now scouting for Ribes in Glocester and 30 enrolled men from ECW Camp S-53 are now scouting for Ribes in West Greenwich. The NIRA crew is working in Coventry. The areas being scouted in these townships have not been inspected since the early years of the control program which started in 1917. Thousands of Ribes have come up from seed in recent years and the present resuppression projects will do much to protect white pine.

The ECW foremen have reported that the camp experience and training of the past few months have done much in improving the men as willing and interested workers. Many ECW problems of 1933 have been solved and greater results are now expected.

The data obtained through the NIRA mapping project, carried on during the past winter to locate white pine and Ribes sites, will be of much assistance in planning and carrying out this year's program. A comparison is being made weekly between the work of the different ECW and NIRA crews in order to discover any weaknesses, and so that efficient work may be done on as many acres of white pine land as possible.

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PROGRESS MADE IN THE SURVEY OF WHITE PINE TIMBER IN OCONEE
COUNTY, SOUTH CAROLINA

J.H. Dean, State Leader

Since May 1 approximately one half of Oconee County has been surveyed for white pine blister rust. At the present time this disease has not been found in the areas inspected. No control work has been carried out for no wild Ribes have been located. The only type of Ribes found so far were cultivated Ribes rotundifolium. These bushes were brought from North Carolina 30 years ago and have been in cultivation since that time. These bushes are entirely out of the white pine area. The nearest white pine is three miles and no disease was found on those cultivated bushes.

Cultivated currants and gooseberries have been located three miles from the South Carolina line in the State of Georgia, but the bushes have not spread from this area for this territory has been scouted along the South Carolina line.

Most of the white pine mapped in Oconee County thus far has been found on the northern slopes and very close to watersheds. Some areas have from 500 to 1,000 trees per acre, ranging from seedlings to trees 90 years old. The survey in this county will be completed about June 16.

ERADICATION WORK STARTED FOR THE SEASON OF 1934 IN MINNESOTA

L. B. Ritter

The 1934 eradication season started May 1 with a training school for NIRA supervisory personnel. The following week these men trained their 20 crew foremen. The full NIRA force, 20 foremen and 100 laborers, was on the payroll for the week beginning May 14. The foremen are all functioning perfectly. The laborers selected by the National Reemployment service are of a very high quality, far exceeding our expectations. The protection of 13 areas of pine totaling 718 acres has been completed to date. 423,131 bushes have been removed from 3,144 acres. The work to date has been carried on in Carlton, Cass, Crow wing, Morrison and Washington counties. The supervisory personnel is at the present time overloaded with work.

The ECW blister rust control activities for 1934 began May 14 with a training school for all ECW blister rust control personnel from the National Forests, Indian Forest and State Forest Service. Work is now under way out of Jay Cooke and Scenic State Park camps, and Camp 79-S, working in the Cloquet Forest Experiment Station.

A total of 14 eradication projects have been completed, protecting 768 acres of pine. We have worked 3,513 acres pulling 498,291 wild and 190 cultivated Ribes. The total man days labor used was 1,160 and 70½ man days supervision.

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STATE LEADERS APPOINTED IN TENNESSEE, VIRGINIA AND WEST

VIRGINIA

Mary E. Hunt, Wash. D. C.

State Leaders have recently been appointed in Tennessee, Virginia and West Virginia to supervise cooperative blister rust control work in those States. Mr. William Duggan has been appointed State Leader in Tennessee with headquarters at Knoxville. His appointment was effective on May 7, 1934. Mr. Duggan has been a student at the University of Michigan Forest School for the past four years where he pursued a course in forestry and pathology.

Mr. John G. Luce, Jr., is the new leader in Virginia. His headquarters are at Charlottesville and his appointment was effective on May 21. Mr. Luce received the B.S. degree in June 1926 from the University of Virginia and attended the Yale Forest School from June 1927 to February 1928. For three summers he has been employed in a New York State Y.M.C.A. camp engaged in teaching nature courses.

Dr. Joseph M. Ashcroft has been appointed State Leader in West Virginia his appointment being effective May 12. His headquarters are at Marlinton. Dr. Ashcroft attended the West Virginia University where he received the degree of Bachelor of Science in June, 1930; M.S. degree in June, 1931 and Ph.D. degree in June, 1933. He has had experience as a supervisor in the eradication of canker of black walnut and up to the present time has been employed by the Conservation Commission of West Virginia.

LIST OF BLISTER RUST CONTROL MEN RECENTLY APPOINTED
IN THE SOUTHERN APPALACHIAN STATES.

Roy G. Pierce

GEORGIA - W. V. Zimmer, Leader, Dahlonega
R. C. Heslop "

MARYLAND - H. E. Yost, Leader, Grantsville
E. R. Porter, Oakland
Daniel W. Norris, Hancock

NORTH CAROLINA - John A. Ferree, Leader, Room 604, County
Court House Bldg., Asheville
C. J. Hansel, Marshall
H. B. Teague, 421 6th Ave. Hendersonville
Bill Muse, Pineola
H. G. Bolick, Box 143, Morganton

SOUTH CAROLINA - J. H. Dean, Leader, C/o Prof. Geo. M. Armstrong,
Clemson College

TENNESSEE - Wm. Duggan, Leader, Room 307, Federal Bldg., Knoxville
Pete Stegall " " "
A. H. Moss " " "
Troy Jones " " "

VIRGINIA - John G. Luce Leader, C/o State Forester, Charlottesville
W. N. Early, Jr. " "
W. T. Holt " "

WEST VIRGINIA - Dr. J. M. Ashcroft, Leader, County Court House
Marlinton
Ralph M. Welch, County Court House, Marlinton
Irvin F. Fox " " " "

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SKUNK CURRANTS IN WESTERN MARYLAND

L. W. Hodgkins

While carrying on inspection work in Maryland a short while ago, I was surprised to see numerous skunk currants in Garrett County. The location of the bushes was 1-3/10 miles south of the city line of Accident. I don't think I have ever seen skunk currants more abundant, even in the northern states. The conditions are much the same as are found in the northern sections. The bushes extend along both sides of the road for nearly a half mile. There were no white pines present.

Note: Numerous skunk currants were found by Mr. H. E. Yost, State Leader in the Swallow Falls State Forest also in Garrett County some 10 miles north of Oakland. Garrett County seems to be the only place in western Maryland where these bushes have been found in any abundance.- R.G.P.

PHENOLOGICAL DATA

Maine

Agent White reports that aecia was noted on pine on May 3 in Solon, also uredinia was noted on Ribes hirtellum May 31 in Solon.

Wisconsin

Mr. T. F. Kouba, State Leader in Wisconsin, reports that he and Dr. Honey, Acting Project Manager of blister rust control work on the Menominee Indian Reservation near Shawano, found several Ribes cynosbati heavily infected with the uredinial stage of Cronartium ribicola on June 6.

Virginia

On May 26, Mr. E. H. Francis, Forester in the Shenandoah National Park, collected specimens of white pine and Ribes rotundifolium showing the aecial and uredinal stages of the rust respectively. Some specimens had also been collected previous to this time in May. Examination by Pierce of one of the oldest infections found by Mr. Francis showed that infection took place probably 7 years ago, that is in 1927. Several other pine infections were found dating back to 1931.

Massachusetts

Mr. C. C. Perry writes: "As usual we find there has been a considerable variation in the development of aecia throughout Massachusetts. We are still convinced, however, that the degree of aecial development is dependent upon the age and physical conditions of the infected tree and the age of the canker, rather than upon meteorological conditions.

"In District I-II (Northeastern) Agent Roop is quoted as follows:

"I have completed the examination of the special infection areas and find aeciospore production is normal. As usual the older areas show little fruiting, while newly developed cankers show heavy aeciospore production."

"District III-IV (Southeastern) Agent Brockway feels that there was a distinctly reduced development of aecia, especially in one area in Norwell where the infected pines have been experimentally inoculated with Tuberculina Maxima.

"We have not as yet received any progress report re these experiments and, therefore, do not know whether there is any relation between the inoculation and the degree of fruiting. In the older infection areas such as at Pembroke, aecial development has practically ceased.

"In District V-VI (Worcester) Agent Clave reports a normal season and feels that 'the extreme cold of the winter has had no effect on the production of aecia. Young cankers especially are fruiting with their usual abundance' "

"Agent Wheeler in District VIII (Hampton County) also finds conditions normal and in the Berkshires (District IX) Agent Doore reports that aeciospores were being liberated quite generally on May 1, and notes if anything a more profuse fruiting of cankers on their outer limits."

Mr. Wm. Clave writes as follows: "The first fully developed aecia found in Worcester County for the 1934 season were observed at Princeton on April 19. This is rather early for this locality.

"Late frosts occurring during the early part of May defoliated skunk currants in several places in Winchendon. Plants were found on May 15, with withered leaves which had grown to one inch in diameter before being killed by frost.

"A decided increase in the number of fruiting bodies of the cluster cup rust (Puccinia Pringsheimiana) was observed on skunk currants in all sections of the towns of Royalston and Winchendon this spring. This disease has infected the leaves to such an extent that the addition of blister rust infection will in all probability cause early defoliation of this species.

Minnesota

Mr. L. B. Ritter reports that the first aecia was observed May 4 in Washington county. The first Ribes infection was observed May 10 in Crow Wing County. Additional pine infection was found in both the eastern and western parts of Crow Wing county.

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BLISTER RUST CONTROL WORK IN NORTH CAROLINA

J. A. Ferree, State Leader

Blister rust control work was inaugurated in North Carolina on April 23, 1934 in cooperation with the State Department of Agriculture. By May 7, 1934, four District Leaders reported and were assigned districts ranging from three to seven counties. Each county is to be covered separately and completely before moving to the next. The four District Leaders were given training during the week of May 7th at Linville, N. C. which is in Avery County. The section worked was thickly covered with both Ribes and white pine. There is, in addition to the above men, a blister rust checker working in the National Forest. At present he is stationed at C.C.C. Camp F-6 on the Grandfather Division of Pisgah National Forest.

Each of the above District Leaders has working under him two or three scouts who were trained by the respective leaders. Three men were picked from the rolls of the local reemployment agency, their qualifications being knowledge of the mountains, good eyesight and physical fitness.

Some of the most interesting facts observed by the District Leaders and the Blister Rust Checkers are that sections that have been cut or burned over in recent years are coming back in white pine growth faster than in any of the various pines or hardwoods. So far, no wild Ribes have been found growing under an elevation of 2500 feet in this State. The cooperation of private land owners so far has been more than satisfactory.

The headquarters office of the blister rust control work in North Carolina is located at 604 County Court House, Asheville, N. C.

TREE LANDMARKS FELLED

(Extract from Manchester, N.H. Newspaper, April 19)

Two old growth white pines which sawed out 5,750 board feet of lumber were recently cut by Frank Coolbroth of Conway who was operating the Haynes lot in Wolfeboro for Bean and Fisher. The trees could be seen from the new highway leading from Wolfeboro Center to Ossipee Center. They were about 400 feet south of the road, their tops towering above the old hardwood and hemlock growth as an old field pine does gray birch.

According to the annual rings on the stump of the larger tree it started growing about 1660, 274 years ago! It was 48 inches in diameter on the stump and topped nine inches at 138, that being the merchantable length of the tree. Its total height was 158 feet, and it sawed out 3,100 feet of lumber.

The second tree was 135 feet tall and sawed out 2,650 board feet. The first limb on this tree was 65 feet from the ground.

The larger tree had an axe cut just above the stump over which 150 growth rings could be counted. Some one notched the tree about 1784.

Had the trees been left they would probably have blown down or been hit by lightning. They will be missed by those who knew them.

(Note: A few years ago the News was running a contest to find the tallest white pine. I must have missed the tree described above. I measured its height with a steel tape and I know the measurements are correct. I have a four inch cross-section of the butt log which I intend to use at Fair demonstrations with pins marking the different dates. - Stephen H.Boomer).

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RIBES ERADICATION WORK IN VIRGINIA.

Clyde A. Stevens

Beginning Monday, April 30, crew eradication was initiated on Little Flat Mountain in Albemarle County. The crew consisted of four C.C.C men and the writer. During May about 320 or more acres were worked by crew-in line method, a total of 8291 Ribes plants being accounted for.

In brief, 8480 Ribes plants have been pulled, clearing approximately 500 acres and fully protecting three areas of white pine containing about 15, 10 and 5 acres respectively and partly protecting two other areas of about 125, and 15 acres respectively. In addition to the writer's time, 77 C.C.C. man-days have been required to accomplish this work. As far as could be ascertained all Ribes pulled were of the species rotundifolium.

All of the white pine areas on this mountain are in the ridge type. The Ribes are found in rocky wet-weather branches on cliffs, in semi-open to open pastures and in moist places at higher elevations near roads, trails and paths and in extremely rough ground.

REPORT OF A FIELD TRIP THROUGH UPPER MICHIGAN, OTTAWA NATIONAL FOREST,
EASTERN WISCONSIN UNITS AND THE MENOMINEE INDIAN RESERVATION.

H. N. Putnam

Franklin and I visited the Sturgeon River MECW Camp last Tuesday (May 22). There is a considerable acreage of white pine to be worked on the main camp and also plans have been made and approved for a blister rust side camp of 26 men in charge of the blister rust foreman to be located not far from Iron Mountain, Michigan. Anderson, the blister rust foreman at this camp was just starting some CCC crews on an area near the main camp. They were using paper to mark the lines until we arrived with some string and they liked the string very much better. We checked back of a crew and found only a very small number of small bushes, mostly R. cynosbati, in a hardwood stand which originally had quite a few bushes. The CCC boys took a decided interest in learning the different species and were doing very good work.

We had an opportunity to test the comparative merits of paper and string when we attempted to check a strip formerly worked marked by paper. Franklin attempted to follow the paper line back, got confused and got over into another strip owing to the difficulty of determining definitely where the paper line was. It was demonstrated forceably to all of us that the end man following the paper line must necessarily lose a lot of searching time in attempting to follow the paper line back, particularly so if the line is at all crooked.

Following this check on the actual crew work we went over an area which had been previously missed and reported on a pine area record sheet, in order to show the men just how to lay out an eradication job when the map and pine area record sheet are at hand. It is a simple matter for a foreman to take such a map as we had of the pine area in question and intelligently lay out his local work plan for that area.

In the afternoon we visited the infection area discovered last fall not far from Iron Mountain. This infection of trees, mostly from 11 to 20 years old, was apparently primarily caused by Ribes nigrum perhaps 600' away found and destroyed in 1931. The infection apparently originated on the pines in 1927. On a certain portion of the area nearest the former location of black currants infection was particularly severe; probably 75% of the pines were infected, many of them were practically dead and most of the others will be soon. Many of the trees have a dozen cankers on them. Aecia were just bursting through but dispersal had not proceeded very far yet. There are very few large R. cynosbati scattered through the pines and associated closely with them. So far there is little evidence of intensification of the rust on the pines coming from the R. cynosbati. Undoubtedly if these Ribes are allowed to remain such intensification is bound to occur.

After supper we visited the Ralph Area where damage is very obvious, particularly in that portion of the area where there are large gooseberries and pines from 21 to 40 years old.

On the Ottawa they are planning on working 16,000 acres which have been covered by preeradication surveys and mapped. The work is very well organized under Grimes here. He has selected some good men for blister rust foremen in each camp. The camp superintendents are very much in sympathy with the work and are interested in it. While we were at the Paint Lake Camp, Franklin, Bennett and I took a 12 mile circular trip through the forest. Nearly all that time we were in a nearly continuous white pine stand. White pines were coming up quite abundantly under aspen and birch intermingled with small swamps. For the most part the eradication problem will be concerned in removing the Ribes from and near these swampy portions. The only thing that needs checking on the Ottawa is to be sure that the entire area is not worked too intensively and that the uplands, which are nearly Ribes free, be worked either by the strictly scout method or else by crew widely spaced.

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